PREVALENCE OF DENTAL CARIES AMONG RURAL CHILDREN AND EFFECTIVENESS OF PLAYWAY METHOD OF TEACHING ON DENTAL HYGIENE IN SELECTED SCHOOL CHILDREN AT PSG HIGH SCHOOL, VEDAPATTI, COIMBATORE

By

S. CINKU ANGELINE

A dissertation submitted to **The Tamil Nadu Dr. M G R Medical University,** Chennai, in partial fulfillment of requirement of the degree of

Master of Science in Nursing

Branch II Child Health Nursing

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CERTIFICATE

Certified that" **PREVALENCE OF DENTAL CARIES AMONG RURAL CHILDREN AND EFFECTIVENESS OF PLAYWAY METHOD OF TEACHING ON DENTAL HYGIENE IN SELECTED SCHOOL CHILDREN AT PSG HIGH SCHOOL,VEDAPATTI, COIMBATORE"** is the bonafide work of **S.CINKU ANGELINE**, PSG College of Nursing, Coimbatore, submitted in partial fulfillment of requirement for of the degree of Master of science in Nursing to **The Tamil Nadu Dr. M G R Medical University, Chennai.**

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S.NO	ABBREVIATION
1	**DMFT-** Decayed, Missing, Filled Teeth
2	**DMFS**- Decayed, Missing, Filled Surface
3	**ECC-** Early Childhood Caries
4	**F-** Frequency
5	**M ± S.D-** Mean and standard deviation
6	**N**- Number of samples
7	**OHRQoL-** Oral health related quality of life
8	**USPSTF-** United States Preventive Services Task Force
9	**WHO**- World Health Organization

ABSTRACT

Prevalence of dental caries among rural children and effectiveness of play way method of teaching on dental hygiene in selected school children at PSG High School Vedapatti, Coimbatore.

Tooth-decay is the most common problem affecting 50% of the children during the middle childhood and 70% of the children during the late adolescent. Dental caries is an infectious disease, which can occur when calcinogenic bacteria colonizes a tooth surface in the presence of dietary carbohydrates, especially refined sugar.

Objectives of the study:

To assess the prevalence of dental caries among rural children and determine the effectiveness of play way method of dental hygiene among school children.

Research Methodology:

The study was conducted in PSG high school Vedapatti, Coimbatore and the research design adopted in this study was one group pretest post test. As per the inclusion criteria 177 children were selected using the stratified sampling technique. Screening was done using the DMFT score, the pre test score of knowledge and practice of dental hygiene was assessed and Fones brushing technique was taught to the children. After 15 days of teaching the post test score was assessed using the same questionnaires.

Major findings of the study:

Among 500 children 177 were affected by dental caries which was identified using the DMFT score. While comparing the pre test and post test scores of knowledge and practice on dental caries and hygiene there was a significant difference between the tests which indicates $t = 28.77$ and $t = 8.24$ at($p<0.05$).There was an association between the knowledge and practice score of dental caries and hygiene with the age. Thus the study concluded that there was an effectiveness in the play way method in teaching the Fones brushing technique to prevent further dental caries.

Key Words: Play way method; Dental Hygiene; Dental Caries; Prevalence; Effectiveness; Fones brushing technique

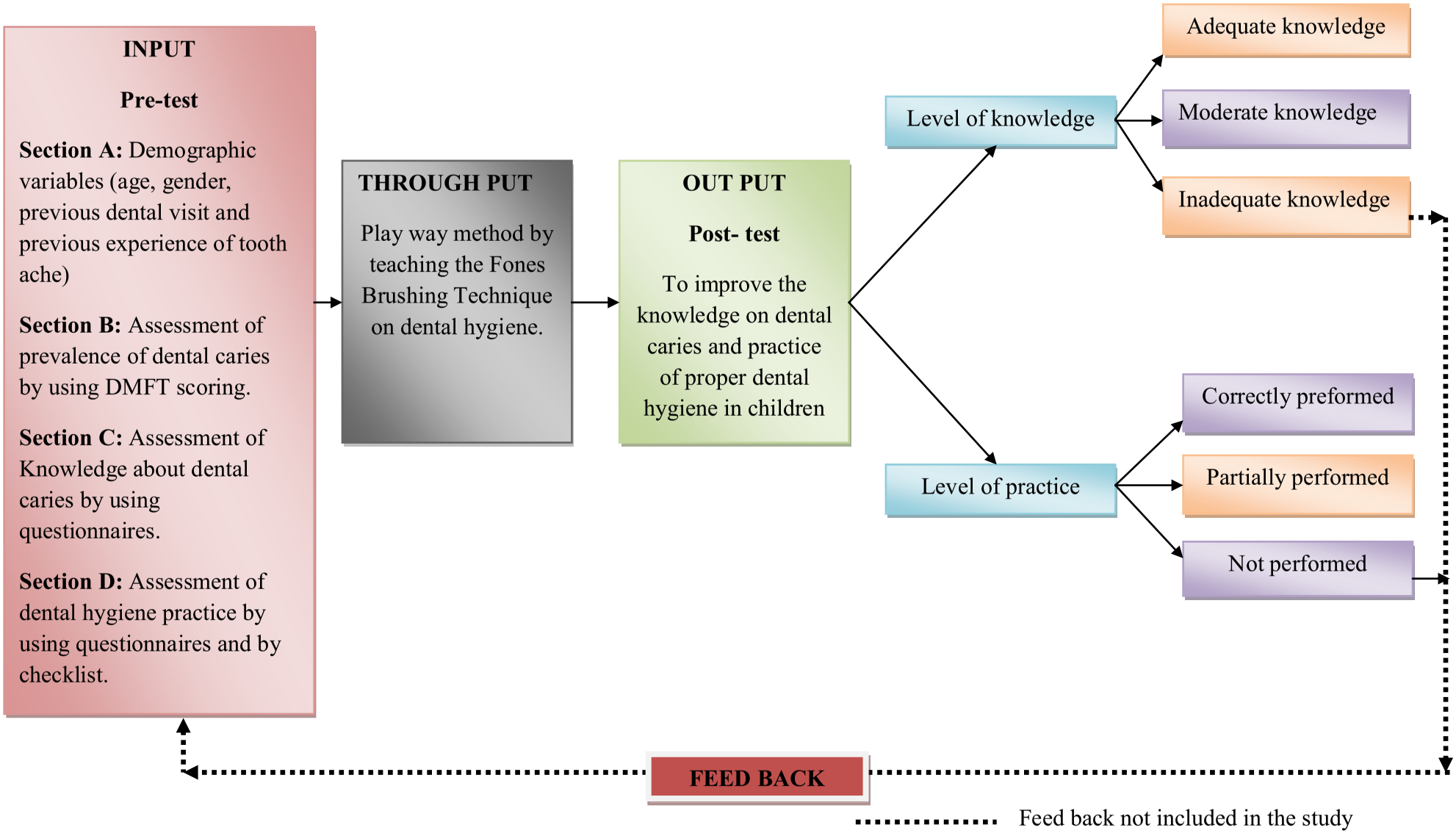

Figure 1.1: Modified General System Model to Assess the Prevalence of Dental Caries among Rural Children and Effectiveness of Playway Method of Teaching on Dental Hygiene (1968)

CHAPTER-I

INTRODUCTION

1.1 Background of the study

Oral health is essential for the general health of a person throughout his life span and is a mark of his overall health status. Dental caries is a major oral health problem in children. In the developing countries like India the prevalence of dental carries is very high among the schooler and adolescents. Research and other advances in oral health has underlined the effective means to maintain oral health and prevent the dental caries. Tooth- decay is the most common problem affecting 50% of children by middle childhood and 70% of late adolescent. **(Tannai .D.Q, 2002)**

Dental caries is a bacterial infection that causes demineralization and destruction of the hard tissues of the teeth. It is caused by the action of acids due to bacterial fermentation of food debris on the enamel surface. It is a disease in which the minerals of the tooth are dissolved into the surrounding bacterial plague and to the saliva. In the development of dental caries, the relationship between demineralization and remineralization is influenced by the presence of saliva, which facilitates the transportation of ions, oral bacteria, and fermentable carbohydrates to the exposed surfaces of teeth. The bacteria metabolizes the carbohydrates, producing lactic acid which, in due course, demineralizes the tooth surface. **(Carneiro .L, 2011)**

The prevalence and incidence of dental caries in a population is influenced by number of risk factors such as age, sex, ethnic group, dietary pattern and oral hygiene habits. Additionaly, there is a marked variability in the pattern of various diseases between different socioeconomic groups in the same country. The prevalence is even higher in rural people and among school children. The absence of the practice of healthy habits often leads to this type of problem. The habit of taking care of dental health is obtained from the parents and other senior members of family. **(Sogi G.M, Basker .DJ, 2014)**

In India the birth rate is high and there is less spacing between two births due to which, mothers are not capable of giving proper care to all the children. If dental caries develops after the eruption of permanent dentition, it may lead to permanent damage and spreads the infection throughout the body. A study was conducted in a rural block of Sundarbans, to assess the prevalence of dental caries among students after the eruption of permanent dentition. It was concluded that the socio demographic characteristics such as poverty, environmental resources, the type of food consumes and life style influence the frequency of dental caries and affect the children. **(Pratyay Pratim Datta, 2013)**

Dental caries is the principle oral problem in children and adolescents. Reducing the incidence and consequences of the disorder is of greater importance in childhood, which if untreated, results to the total destruction of teeth. The age of greatest vulnerability is 4-8 years for the primary dentition and 12-18 years for the secondary or permanent dentitions. "Fluoridation is the single most important commitment a community can make to the oral health of its children and to the future generations". **(David Satcher, 2002)**

1.2 Need for the study

Dental caries is the most common problem in the universe. It is an infectious disease which can occur when calcinogenic bacteria colonizes a tooth surface in the presence of dietary carbohydrates, especially refined sugar. Increasing the resistance of the tooth is done by the use of fluorides, control of plague, correct nutrition, dental health education, early reconception of major disorder or facial complex and a regular visit to the dentist. An estimation of global DMFT (Decay, Missing, Filled Teeth) for 12 year-old children were reported by World Health Organization in the year 2004 as 200,335,280 children tooth were decayed, missed and filled teeth.

A cross sectional study was conducted to determine the prevalence and determinant of early childhood caries among the children attending the Anganwadis of Wardha district, India. Among 330 children 105 were found ECC (Early Childhood Caries). In this study 215 children belongs to the age group of 43-60 months and 72 (33.48%) children were found to have early childhood caries. A significant association

was found between the history of bottle-feeding and early childhood caries at (P = 0.0218). The study describes the use of brush and paste for cleaning teeth and discouraging inappropriate bottle-feeding, discouraging on demand consumption of chocolates and sugars. **(Gaidhane A.M, 2013)**

Dental caries is more common among 6-12 years old school children because of poor dental hygiene, improper brushing of teeth, eating more sweets and poor oral hygiene. Hence the researcher was motivated to assess the prevalence of dental caries among school children and to improve their dental hygiene through play way method which will create the awareness to improve oral health status.

The researcher was motivated to show the Fones brushing technique to improve the dental hygiene of the children, to prevent dental caries and teach them about the health problems related to dental caries in a play way method. Thus helps to promote the oral hygiene and improve the health status of the children.

1.3 Statement of the problem

Prevalence of dental caries among rural children and effectiveness of play way method of teaching on dental hygiene in selected school children at PSG high school Vedapatti, Coimbatore.

1.4 Objectives

1. To assess the prevalence of dental caries among rural children.
2. To assess the knowledge and practice regarding dental hygiene among school children.
3. To determine the effectiveness of play way method of dental hygiene among school children.
4. To find out the association of knowledge score regarding prevention of dental caries among school children with their demographic variables.
5. To find out the association of practice score regarding prevention of dental caries among school children with their demographic variables.

6. To find the correlation between knowledge and practice regarding dental hygiene among school children.

1.5 Assumptions

1. Teaching will help to increase the knowledge on dental hygiene among school children.
2. Dental caries is a common problem among children.
3. Intake of sugar and chocolate causes dental caries.

1.6 Hypotheses

H_1: There will be a significant difference between pre test, post test knowledge and practice score regarding dental hygiene among school children at 0.05 level of significance.

H_2: There will be an association between knowledge on dental hygiene and selected demographic variables at 0.05 level of significance.

H_3: There will be an association between the practice score on prevention of dental and selected demographic variables at 0.05 level of significance.

H_4: There will be a correlation between knowledge and practice regarding dental hygiene among school children at 0.05 level of significance.

1.7 Delimitations

1. The study was delimited to 6-12 years old school children who have dental caries.
2. The study was delimited for rural school children.

1.8 Operational Definitions

Prevalence: It is the number of school children aged 6-12 years affected with dental caries in PSG high school, Vedapatti, as assessed by using DMFT scoring

Effectiveness: Effectiveness refers to improvement in the knowledge scores and practice of dental hygiene by using Fones brushing technique in a play way method, as assessed by using knowledge and practice questionnaires and checklist on practice.

Play way method: It referred to showing cartoon videos to school children about dental hygiene and showing Fones brushing techniques.

School Children: School children referred as children in age group of 6-12 years children studying in 1-7th standard at PSG public high school, vedapatti, Coimbatore.

1.9 Projected out come

Play way method of teaching could help the child to practice proper dental hygiene.

1.10 Conceptual Framework

The conceptual framework for this study was derived from general system model (Ludwig Von Bertalanffy, 1968). It is regarded as a universal grand theory because of its unique relevancy and applicability. It is composed of both structural and functional components that interact within a boundary that filters the type and rate of exchange with the environment. Living system terms are open because there is an ongoing exchange of matter, energy and information, through the process of selecting the system which regulates the type and the amount of input through self-regulation to maintain the system equilibrium or homeostasis. Some types of input are used immediately in their original state whereas the other complex transformations are continuously processed through the system and are released as output. The following components in the modified general system model are as follows:

Input: Input is the information needed by the system. It includes the demographic variables and prevalence, knowledge of dental caries and practice of dental hygiene.

Through put: Through put is the activity phase. It is a process that allows input to change. It includes the play way method of teaching the Fones brushing technique.

Output: The information are continuously processed through the system and released as output in an altered state. It includes post test evaluation of the knowledge and practice questionnaires for dental hygiene and the checklist is used to see the practice of dental hygiene.

Feedback: It is the response of the environment to the system. Feedback may be positive or negative or neutral. It is necessary to strengthen the input and throughput and modify them as desired when the result shows any inadequate practice of brushing techniques.

Summary:

This chapter deals with the introduction, need for the study, statement of the problem, objectives, assumption, hypotheses, operational definition, conceptual framework and projected outcome.

CHAPTER II

LITERATURE REVIEW

Researchers rarely conduct research in an intellectual vaccum; their studies are undertaken within the context of an existing knowledge. A critical summary of research on a topic of interest is often prepared to put a research problem in context **(Polit, 2008)**

- Literature related to prevalence of dental caries.
- Literature related to knowledge of dental caries.
- Literature related to prevention of dental caries.
- Literature related to dental caries.

2.1Literature related to prevalence of dental caries

A cross sectional epidemiological study was conducted in Chepang school children of Nepal. The objectives of this study was to record the prevalence of dental caries, report experience of dental pain and evaluate the knowledge, attitude and preventive practices on oral health. Data was collected using a pre test questionnaire among 131 school children aged 8-16-year- old and clinical examination was done. Out of this 56% children reported that they were cleaning their teeth daily, only 24% reported that they were brushing their teeth twice daily. About 86% of the children reported that they were using toothbrush and toothpaste to clean their teeth and 61% children reported that they had received oral health education. Eighty two percentage children did not know about fluoride and its benefit on dental health. About 50% children reported that bacteria was the main cause of tooth decay and 23% was because of not brushing teeth for gingivitis and 75% of children reported that they were eating sugar rich food once daily. The conclusions showed that 31% school children aged 8-16-year old suffered oral pain and decayed component constituted almost the entire DMFS/DMFT index. The brushing habit was reportedly low with only 24% of the children brushing twice daily **(Ajay Shakya, et al., 2004)**.

A study was conducted on the prevalence of dental caries and treatment needs in school-going children of rural areas in Udaipur district. The total students involved in the study were 1587 government school children in the age group of 5-14 years. It was concluded that dental caries was found in 46.75% of children and 76.87%of children requires some kind of dental treatment **(V Dhar et al., 2007).**

A correlated prevalence survey was conducted on the prevalence of dental caries among 105 school children in Kulasekharam village, by using simple random sampling technique. The questionnaire was answered by the children who were examined for DMFT. Totally 150 children in the age group of 6-12 years with an equal distribution of 75 boys and 75 girls were included in the study. Higher number of boys (76%) reported a good knowledge about dental caries, whereas the percentage was only 47% of the girls for the same. Only 59% of the total population was reportedly scared of the dentist. The mean DMFT was 1.25 for boys and 0.96 for girls, whereas DMFT showed ranges of 1.36 for girls and 2.09 for boys **(N.Joshi, 2005).**

A cross-sectional study was conducted on the prevalence and factors related to dental caries among pre-school children at Saddar town, Karachi, Pakistan, to determine the frequency of dental caries among 1000 pre-school children. Two-stage cluster sampling was used to select the sample. At first stage, eight clusters were selected randomly from total 11 clusters. During the second stage, from the eight selected clusters, preschools were identified and children between 3- to 6-years age group were assessed for dental caries. The results show that the prevalence was 51% with a mean DMFT score of decayed teeth was 1.95. The mean DMFT of males was 2.3 and of females was 1.90. The mean DMFT of 3, 4, 5 and 6-year olds was 1.65, 2.11, 2.16 and 3.11 respectively. The half of the preschoolers had dental caries coupled with a high prevalence of unmet dental treatment needs **(Dawani, 2011).**

A cross sectional study was conducted on the prevalence of dental caries among school-going children of 4-6 years in Namakkal district. Among 850 examined children 560 (65.88%) children had dental caries and mean DMFT score was 2.86. Prevalence of dental caries was higher in boys (69.6%) than in girls (61.5%). It was

concluded that prevalence of dental caries among 4-6 years old children is high in the Namakkal district (**Ramachandran Karunakaran, 2014).**

A descriptive study was conducted on the prevalence of dental caries in primary dentition in 4- to 5-year-old Preschool children in Northern Palestine. The 1376 children of both sexes were investigated by using the DMFT index according to the WHO method. The 76% of the studied children experienced dental caries at the age of 4-5 years (1046 children). The mean DMFT score was found to be 2.46 while the other 24% of children were caries-free. There was no significant difference in caries prevalence between boys and girls (77.2% versus 74.6%). Children of highly educated and college graduated mothers were found to have more fillings (restored teeth) in comparison to those who belong to mothers who did not finish their secondary (high school) education. The number of caries-free children in northern Palestine is still far from numbers found in developed countries **(Zafer Azizi , 2014).**

A survey was conducted on the prevalence and treatment needs of rural school children in Chidambaram Taluk, Tamil Nadu, South India. The objectives was to obtain information on caries prevalence and treatment needs of children aged 5-10 years to plan appropriate dental care services in rural areas. Each child was clinically examined in the schools by calibrated examiners. Among 508 children, five hundred and eight 5-10 year-old school children (247 boys and 261 girls) were surveyed. Caries prevalence was 71.7 and 26.5% in primary and permanent dentition, respectively. In the WHO index age (5-6 years), the caries prevalence was 70.2% (29.8% caries-free) with a mean DMFT value of 3.54 +/- 3.71. The study concluded that Dental caries is a significant public health problem in this population. **(Saravanan .S et al., 2008)**

2.2Literature related to knowledge of dental caries

A cross sectional study was conducted on oral health knowledge and practices of secondary school students in Tanga. A structured questionnaire was used to assess the 785 students' level of oral health knowledge and practices. Six hundred and ninety four (88.4%) students had adequate level of knowledge on

causes, prevention, and signs of dental caries, 760 (96.8%) on causes and prevention of periodontal diseases, 695 (88.5%) on cigarette smoking as cause of oral cancer, and 770 (98.1%) students on importance of dental checkups. Majority 717 (91.3%) had adequate practice of sugary food consumption while 568 (72.4%) had acceptable frequency of tooth brushing, 19 (2.4%) brushed at an interval of twelve hours, and 313 (39.9%) visited for checkup. Majority of the students had an adequate level of knowledge on oral health but low level of oral health practices. Both genders had similar level of knowledge with male predominance in oral health practices **(Carneiro .L, Kabulwa .M, Makyao .M, Mrosso .G, Choum .R, 2011).**

A descriptive cross sectional study was conducted on oral health knowledge and oral hygiene practices among primary school children aged 5-17 years in a rural area of Uasin Gishu district, Kenya. A questionnaire was administered to determine the oral health knowledge and practices among 401 students. The results describe that 48% brushed twice daily. Female students brushed more frequently than their male counterparts and 39.9% of the students knew the cause of tooth decay, 48.2% followed one method of prevention, while 16.5% knew the importance of teeth. Use of toothpaste was reported by 38.9% of the student. The study concluded that there is a need to increase the oral health knowledge through well planned school based oral health education programmes in the primary schools **(Okemwa KA, Gatongi PM, Rotich JK 2010).**

A cross-sectional study was conducted on oral health status, knowledge, attitudes and behaviors among marginalized among 132 children aged 6–15 years in Addis Ababa, Ethiopia. The aim was to assess the prevalence of dental decay and gum disease and oral health practices and its barriers. A comprehensive questionnaire and oral examinations were conducted. The results shows that 48% did not brush teeth and 43% brushed only once daily. Seventy-four percent had dental caries between the age group of 1-13 years and 52% showed evidence of bleeding upon brushing. Seventy-eight percent did not clean teeth and were more likely to consume sugary food ($p<0.05$) with oral pain within past six months ($p<0.01$). The study emphasizes the

national oral health strategies, targeted health education to improve the access to local preventive tools and provision of oral care by training community health workers in the World Health Organization basic oral care package. **(Delia Burnett et al., 2015)**

A cross sectional study was conducted on the evaluation of the knowledge, attitude and awareness in prevention of dental caries among 123 paediatricians at 3 district quarters, India. The aim was to evaluate the knowledge, attitude and awareness of pediatricians in the prevention of dental caries. Twenty nine sets of questions were mailed to all 81 pediatricians. The response rate of the survey was 90% (70 out of 81), a total of 59% felt that the frequency of early childhood caries (ECC) in their O.P.D was at least once a week. 51% responded that bacteria causing dental caries cannot be transmitted between mother and child. 53% felt that 1 year would be ideal for first dental visit. 64% of pediatricians were not aware that fluoride dentifrices and dental sealants will prevent dental caries. The study concluded that knowledge, attitudes and awareness regarding oral health and prevention of dental caries was not satisfactory. It is essential to develop oral health information programs to pediatricians **(Poornima.P, et al., 2015).**

2.3 Literature related to prevention of dental caries.

A cross sectional survey was conducted on prevention of dental caries with the knowledge, practice and opinion of pediatricians in Lagos, to determine the knowledge, practice and opinion of pediatricians in prevention of dental caries. A questionnaire was distributed to assess their personal details, knowledge about caries, practice guidelines and opinion towards its prevention. Less than one-third (27.7%) of the pediatricians knew that bacteria causing caries can be transmitted from mother to child. Only one-third (30.8 %) of the paediatricians examine children's teeth for dental caries. Majority (87.7%) pediatricians have a role in promoting oral health. A total of 59% of the pediatricians had moderate knowledge, while (71%) of them had poor practice. The study concluded that there is a need of education on dental caries among pediatricians thus they can educate the children **(O.O.Olatosi et al., 2013).**

A cross sectional evaluation study was conducted on of awareness of prevention of dental caries among general pediatricians in Ghaziabad district, India, to evaluate the awareness of prevention of dental caries. The total subjects included in the survey were 88 pediatricians, through systemic random sampling. The findings shows that moderate knowledge 39.7%, followed by good knowledge 36.5% and poor knowledge 23.8% about dental caries. The attitude for prevention of dental caries was positive in almost everybody 81.8%. The present survey concluded that pediatricians had a good attitude and practices, but had moderate knowledge and lacked proper awareness about dental caries **(P.Kumar, et al., 2011)**

2.4 Literature related to dental caries

A study was conducted to assess the relationship between the socio-economic status, oral hygiene, gingival condition, and dental caries among 12- to 15-year-old children from 10 public schools with poor socio economic status were randomly selected from each of the five geographical areas in Irbid, Jordan. Among 674 students from 60% of the children belongs to rich socio economic back ground had bleeding on brushing and calculus. The findings showed that oral hygiene, gingival status, and dental caries were worse, among rich children. Therefore, dental health education is recommended for both socioeconomic groups. **(Taani .DQ, 2002)**

An epidemiological study was conducted to describe the rate of dental carries among the primary school children in Jeddah, Saudi Arabia. Sample sizes of 82,250 populations were screened. The results of the study show that 83% had dental caries in lower social class which was significantly associated among females and first-grade dental caries. The study emphasized the importance of health education with higher rates of group programmes and the value of school health surveys for targeting this young. **(M.B.S.Gandeh, 2000)**

A cross-sectional prospective study was conducted to investigate the severity of the contributing factors of early childhood caries in preschool children attending Al-Ain Dental Centre, United Arab Emirates**,** by using structured questionnaires. Among 176 children's 44% of children had dental caries due to consuming sweets and

bottle fed, 58 % had history of rarely brushing their teeth. and 63 % had poor oral hygiene. The mean DMFT and DMFS scores were 10.9 and 32.1, respectively. The care index was very low (6.4 %). The study concluded that there was a great need for community preventive programmes to solve the continuing problem of ECC (Early Childhood Caries). **(M.B. Kowash, 2015)**

A cross-sectional study was conducted to assess the dental caries experience, fluorosis, and oral health behavior in children from Herat, Afghanistan**.** Among 1059 children the prevalence of fluorosis was assessed. The study result showed that the mean (SD) number of decayed, missing, or filled teeth was DMFT = 4.88 (3.11). The majority of lesions in 6-year-olds were cavitated, while 12 and 15 years old showed more non or microcavitated lesions. Mean (range) water fluoride concentration was 0.37 (0.19–0.67) ppm. The study concluded that the children should undergo high unmet dental treatment needs and caries experience **(Sebastian Paris, et al., 2015).**

A cross-sectional study was conducted to assess the patterns in food and drink consumption before age 12 months to be associated with caries incidence by preschool age at Porto Alegre, Brazil. A greater number of presumably calogenic items in infancy was positively associated with future caries. Each one-unit increase on the 6-month and the 12-month sweet indexes, but not the 6-month non sweet index, which was associated with greater S-early childhood caries incidence and associated with more decayed, missing, or restored teeth.The study concluded that timely and multilevel intervention is required for assessing infants feeding practices associated with dental caries. **(Benjamin W. Chaffee, 2015)**

A cross-sectional descriptive study was conducted to investigate dental caries experience and oral health behavior among 172 school children aged 7-15 year attending military and paramilitary primary schools in Benin City. Systematic random sampling method was adopted for this study. The response rate was 95.6% and the study involved 96 (55.8%) males and 76 (44.2%) females with age .The prevalence of dental caries were 20.4% with a total mean DMFT/DMFS. About 57.6% had previously visited dentist. Nearly half (47.1%) reported bleeding while brushing and 90.1% took snacks. Furthermore, 92.4% had halitosis. The results concluded that the

school children had satisfactory knowledge of dental personnel and good oral hygiene practices, but poor dental visits and snacking habits **(SA Okeigbemen, 2011).**

A quasi experimental study was conducted on oral health education program on dental caries incidence for school children in Brazil. The objectives was to assess the effect of a school-based oral health education program on caries incidence in children. Among 240 children, 120 in experimental group and 120 in control group. The method of data collection was by using DMFT scale. All children were initially examined for dental caries (DMFT), and after 3 years, 98 children from the experimental group and 96 from the control group were again examined and answered a questionnaire on oral health issues. The students from the experimental group stated knowing what was dental caries and declared that they use dental floss daily, but no significant differences in caries incidence was observed between the experimental and control groups. The study concluded that school-based oral health education program is not adequately efficient to decrease caries incidence after three years, but some issues about oral health knowledge could be slightly improved **(Jaime .R.A, et al., 2015).**

A randomized sampling study was conducted on the Impact of untreated dental caries and its clinical consequences on the oral health-related quality of life of school children among 587 children aged 8–10 years, Brazilian, underwent a clinical oral examination for the assessment of untreated dental caries and clinical consequences. The WHO criteria (decayed component of the decayed, missing, and filled teeth D-DMFT in permanent teeth or D-DFMT in primary teeth) and the PUFA index were used for the oral examination. The findings showed the prevalence of untreated dental caries which was found to be 64.6 % and 17.9 % of children exhibited clinical consequences of caries. The study concluded that dental caries and its clinical consequences exerted a negative impact on the OHRQoL (Oral health related quality of life) of the schoolchildren analyzed **(Leandro Silva Marques, et al., 2012).**

A cross-sectional study was conducted on oral health among 804 children aged 6-year from Berisso, Argentina, to determine the oral health situation of the population. The overall prevalence of caries was 70% (temporary dentition 67.9%,

permanent dentition 16.3%). The DMFT index was 4.52 for males and 4.77 for females. For males, DMFS index scored 8.78 and for females, it scored 9.27. DMFT index was 0.45 for males and 0.51 for females. DMFS index scored 0.68 for males and 0.80 for females. There were differences between socioeconomic groups (employees and manual workers) in DMFT and DMFS indexes. The study concluded that oral indices in Berisso were worse than in other Argentinean studies and were far from the World Health Organization global goals and that, there is an urgent need to strengthen the effectiveness of preventive care **(Llompart .G, et al., 2014).**

An epidemiological study was conducted on oral health status of 5 years and 12 years old school going children in rural Gurgaon, India. The objectives of the study oral health is an essential component of health throughout life. Total of 1003 children were examined of which 619 were in 5 years age group and 384 in 12 years group. Five years age group had prevalence of dental caries was 68.5%, dental fluorosis was 22.5% and treatment needs were 63.7%. In 12 year age group prevalence of dental caries was 37.5%, dental fluorosis was 76.04%, highest community periodontal index score was 2, seen in 80.2% and overall treatment needs were 44.3%. The study concluded that, preventive approaches seem to be a viable alternative to tackle the overwhelming problem of dental caries and other oral diseases. Provision of oral health education in schools and school based preventive programs are important for improvement of this situation **(Meenu Mittal, et al., 2014).**

CHAPTER III

METHODOLOGY

Research Methodology is the research analysis designed to develop or refine method of obtaining, organizing, or analyzing data. (Polit, 2008)

The present study is to assess the prevalence of dental caries among rural children and to implement an effective play way method of teaching on dental hygiene in a selected school children. The study includes research design, variables, setting of the study, population and sampling technique, instrument and tool for data collection, validity and reliability, technique of data collection, ethical approval, report of pilot study and data analysis plan.

3.1 Research Approach and Design

The Research approach used for the study was quantitative evaluative approach.

Research Design

In this study we analyze the one group pre test post test design. It is a quasi experimental design.

$$O_1 \longrightarrow X \longrightarrow O_2$$

O_1: It denotes the pre-test assessment on knowledge and practice of dental caries and hygiene among school children using the DMFT scoring by interview method.

X: It denotes the intervention through play way method of teaching Fones brushing technique.

O_2: It denotes the post-test assessment on knowledge and practice of dental caries and hygiene among school children by using the same questionnaires.

3.2 Variables of the study

Independent variable

- Play way method of teaching dental hygiene.

Dependent variable

- Prevalence of dental caries, brushing habits, age, gender, previous dental visit and previous tooth ache.

3.3 Setting of the study

The study was conducted in PSG high school Vedapatti. The total strength of the school is 700 students, experienced 20 teaching staffs and 8 non teaching staffs. All the facilities are available in the school including stationeries, well equipped classrooms, laboratories and play ground thus the students can enrich their knowledge and extracurricular activities.

3.4 Population and sampling

The population was selected by screening the children using the DMFT score as per the inclusion criteria. Among 500 children a population of 177 was selected for my study. The purposive and stratified random sampling technique was adopted in this study. Consent for participation was obtained in written by their parents.

3.4.1 Sampling technique

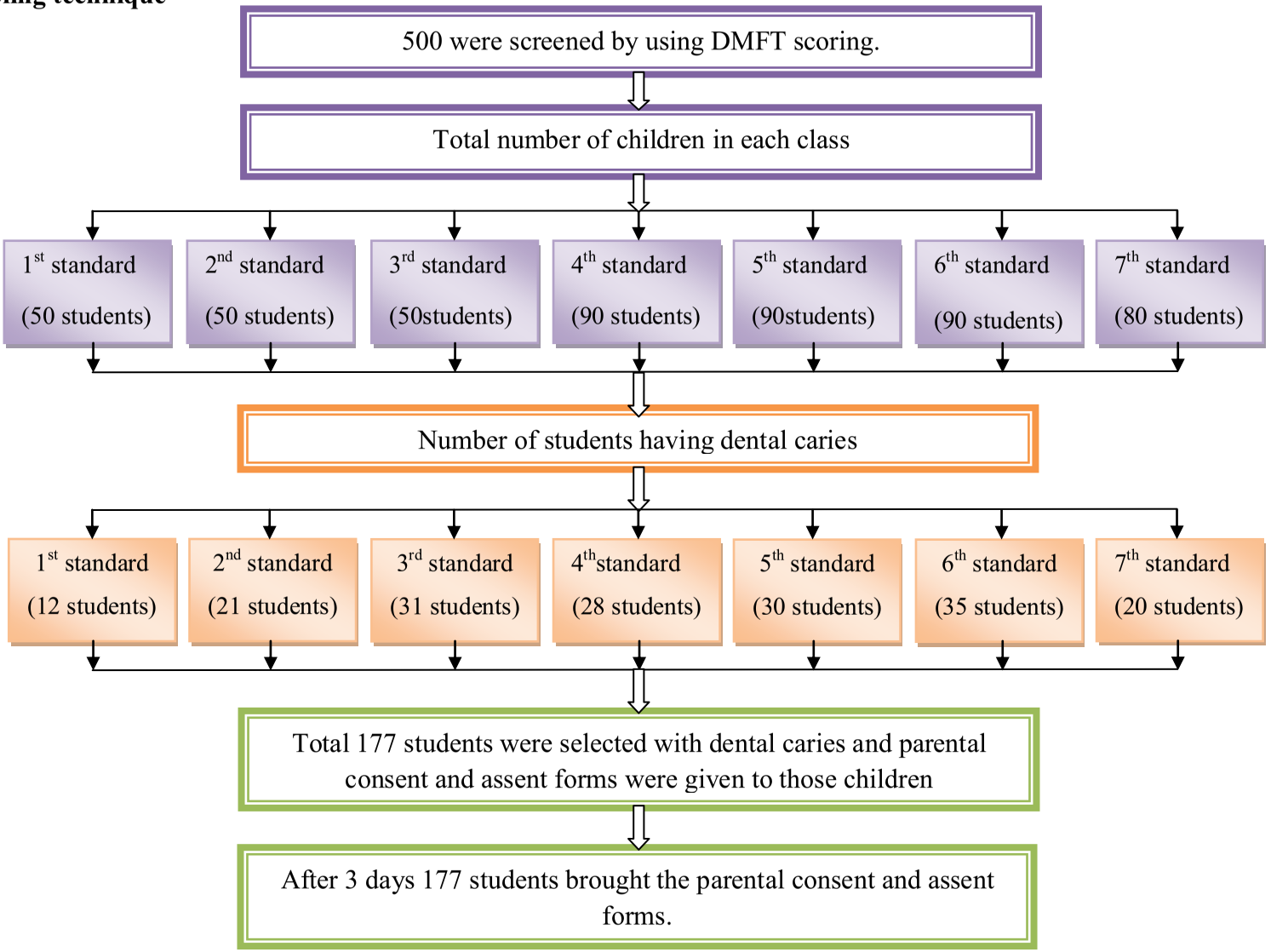

Figure 3.1: Schematic representation of sampling technique

Sample size

Calculation of sample size: Degree of precision method was adopted to determine the sample size

$$n = \frac{4pq}{L^2}$$

Where, n= sample size

P = mean/ Total population in a year × 100

q= 100-p

L= allowable error

n= 4×50×50/100

n= 10000/100

n=100 samples

3.4.2 Sampling Criteria

Inclusion Criteria:

- Age group of 6-12 years of school children.
- School children who are willing to participate in the study.
- Children who has dental caries.

Exclusion Criteria:

- Students who were absent to the class.

3.5 Instrument and tool for data collection:

It comprises of 4 sections

Section A: It consists of demographic data such as age, gender, previous dental visit and previous experience of tooth ache (Annexure IV).

Section B: It consists of ten prevalence questionnaires and the DMFT (Decayed, Filled Missing Teeth) scoring. DMFT scoring is the one that was formulated by WHO which has an estimation illustrating how much the dentition has become affected by dental caries. A DMFT of 28 is maximum, meaning that all teeth are affected. A DMFT value of 0 indicates healthy teeth with no dental caries (Annexure IV).

Score Interpretation

Scores	Criteria
0	No debris or stain present
1	Soft debris covering not more than one –third of the tooth surface or presence of extrinsic strain without debris regardless of surface area covered
2	Soft debris covering not more than one –third, but not more than two-third, of the exposed tooth surface.
3	Soft debris covering more than two-third, of the exposed tooth surface.

$$\frac{\text{Total number tooth part with plaque}}{\text{According to the criteria} \times \text{Number of teeth present}} \times 100$$

Section C: It consists of 12 general knowledge questionnaires about dental caries. Each question carries 1 mark and a maximum score 12. The score is interpreted as 9-12 as adequate knowledge, 5-8 moderate knowledge and less than 4 inadequate knowledge (Annexure IV).

Section D: It consists of 7 questionnaires which deal with the brushing habits of each child and the score is given as 1 mark for each correct answer. The score is interpreted as 5-7 adequate dental hygiene practice, 3-4 moderate dental hygiene practice and 0-2 inadequate dental hygiene practice. Checklist was used to see the brushing technique which has the score of 2 as correctly preformed, 1 as partially performed and score of 0 as not performed (Annexure IV).

3.5.1 Validity and reliability

Validity of the tool was determined by expert's opinion from different fields. The experts were requested to give their opinion, clarity, appropriateness, and suggestions, for modification of the tool and the content validity was obtained.

Reliability of the tool DMFT score was found to be range from 0.61 to 0.91**(WHO, 2003)**. The knowledge correlation was done by split half method. It was computed using Spearman Brown Correlation Coefficient method. The reliability of the tool was found to be 0.88. The tool was found to be reliable for the study.

3.5.2 Technique of data collection

Data Collection was done for a period from 29-06-2015 to 08-07-2015.a screening was done using the prevalence questionnaires and DMFT scoring and the children were selected. Pretest was done on knowledge and practice of dental caries and hygiene and Fones brushing technique was taught to the children. After 15 days of teaching the post test knowledge and practice was determined by using the same questionnaires.

Steps of data collection:

- The ethical committee approved to proceed the study.
- Permission letter was obtained from P.S.G primary and high school at Vedapatti.
- The data was collected in P.S.G high school at Vedapatti.
- The children were screened by using DMFT index scoring.
- After getting permission from the selected children and from their parents, the pretest was done for to assess the knowledge and practice regarding dental hygiene.
- The Fones brushing technique was taught to the children which describes the time to change the brush and the type of brush used in appropriate ages to the children.
- After 15 days, the post-test was done to find the knowledge and practice of dental hygiene.

3.5.3 Data collection procedure

Data was collected in P.S.G high school at Vedapatti. The investigator selected the students who had dental caries and gave scores, according to the DMFT chart as mild, moderate, severe and more severe. After selecting the children, the pre-test was done using the knowledge and practice questionnaires. Fones brushing technique was taught to the children aged 6-12 years. After 15 days of teaching the post test was done using the same questionnaires. The practice of brushing technique was evaluated by the checklist in both the pre test and post test.

Intervention package

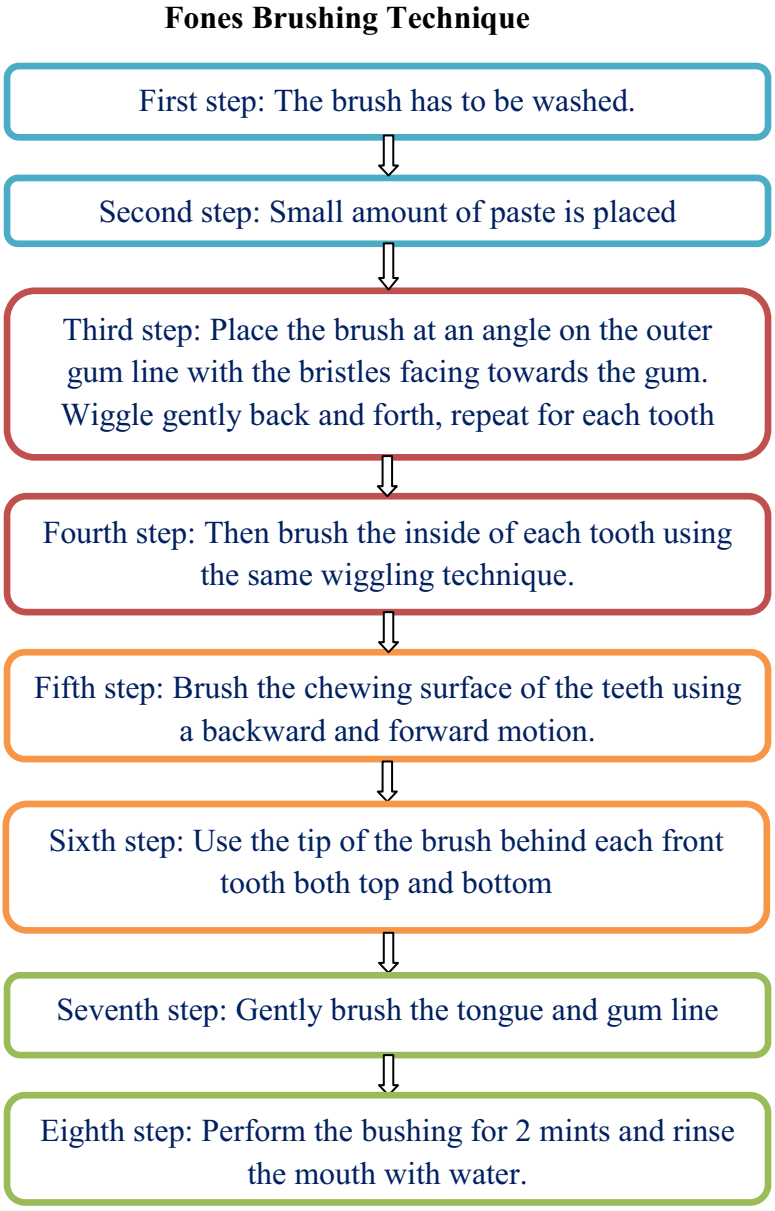

Figure 3.2: Schematic representation of intervention package

3.6 Ethical approval

The Institutional Human Ethical Committee, PSG IMS&R reviewed and discussed the research indicators application dated 18.02.2015 to conduct the research study entitled "Prevalence of dental caries among rural children and an effective play way method of teaching on dental hygiene in selected school children at Coimbatore" during the IHEC meeting held on 27-02-2015. The study was approved by IHEC on 27-03-2015. (Annexure I)

3.7 Report of pilot study

Pilot study was conducted to test the practicability and feasibility of the tool. It was conducted for a period of one week from 03-06-2015 to 10-06-2015 in PSG high school, Vedapatti. Screening was done in each section from 1st to 3rd standard school children. Among 90 children 25 were affected with dental caries and selected for the study. Pretest and post test was done using the questionnaires and found that there was an effectiveness in the knowledge and practice of dental hygiene after teaching the Fones brushing technique. The study was found to be feasible.

3.6.1 Changes brought after pilot study

There were no major changes brought after pilot study presentation.

3.8 Data analysis plan

Descriptive statistics

- Frequency and percentage distribution of sample will be used to assess demographic variables
- Frequency and percentage distribution will be used to describe the level of knowledge on dental hygiene score.
- Mean and standard deviation will be used to assess the knowledge in pre and post dental hygiene score.

Inferential statistics

- Paired “t” test will be used to find out the effectiveness of play way method of teaching on dental hygiene.
- Chi- square test will be used to find an association between pre-test evaluation of dental hygiene on school children and their selected demographic variable.
- Correlation and coefficient will be used to find the relation between pre and post test knowledge and practice on dental hygiene practice.

CHAPTER IV

DATA ANALYSIS AND INTERPRETATION

Data analysis is the systematic organization and synthesis of research data and testing of research hypothesis using the data. Interpretation is the process of making sense of the result of a study and examining their implications. Analysis is the process of organizing and synthesizing data so as to answer research question and test the hypothesis. (Polit, 2008). In this study, the prevalence of dental caries among school children had to be assessed for which, the data was collected, assembled, analyzed and tested individually and described. The findings based on the statistical analysis are presented in this chapter.

Section I

4.1 Frequency and percentage distribution of demographic profile of dental caries among school children.

4.2 Frequency and percentage distribution of prevalence of dental caries among school children

4.3 Frequency, DMFT scoring and percentage distribution of prevalence of dental caries among school children.

Section II

4.4 Comparison of pre and post test knowledge scores of dental caries among school children.

4.5 Comparison of pre and post test score of dental hygiene practice among school children.

4.6 Comparison of mean pre and post test practice score of dental hygiene among school children.

Section III

4.7 Association of knowledge score regarding prevention of dental caries among school children with their demographic variables.

4.8 Association of practice score regarding prevention of dental caries among school children with their demographic variables.

Section IV

4.9 Correlation between the knowledge and practice of dental hygiene among school children.

SECTION I

Table 4.1: Frequency and Percentage distribution of Demographic profile of Dental caries among school children

n = 177

Sl. No.	Baseline data	Male		Female	
1	**Age Group**	**f**	**%**	**f**	**%**
	5-6 years	5	2.8	8	4.5
	7-8 years	15	8.5	22	12.4
	9-10 years	39	22.0	41	23.2
	11-12 years	26	14.7	21	11.9
2	**Previous dental visit**				
	a. Attended dental visit (Yes)	92		52	
	b. Not attended dental visit (No)	85		48.02	
3	**Previous tooth ache**				
	a. Experiencing tooth ache (Yes)	98		55.36	
	b. Not experiencing tooth ache (No)	79		45	

The table 4.1 shows that among 177 children less than one fourth of the children 41 (23.2%) were female belongs to the age group of 9-10 years and 39 (22%) were male belongs to the age group of 9-10 years. Half of the children 92 (52%) children had previous dental visit and half of the children 98 (55.86%) had previous history of tooth ache.

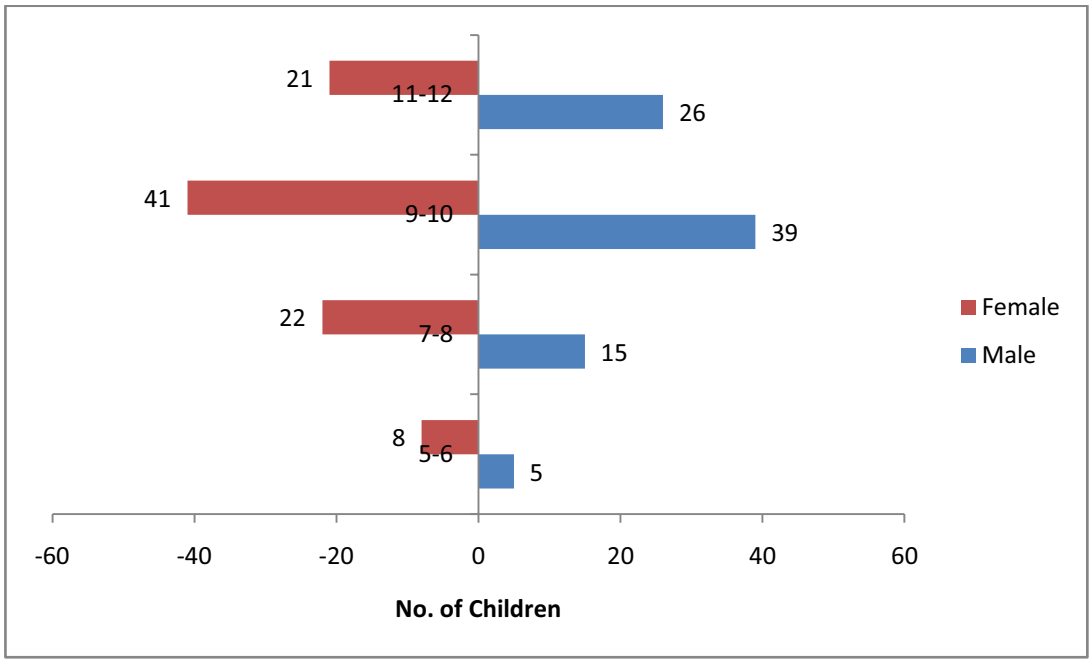

Figure 4.1: Frequency distribution of demographic variables of children's having dental caries according to their age and gender

Table 4.2: Frequency and Percentage distribution of screening on prevalence of Dental caries among school children

n =500

Sl. No	Prevalence	Frequency	Percentage (%)
1	Dental Caries present in children	177	35.4
2	No Dental Caries present in children	323	64.6

The table 4.2 reveals that among 500 children most of them 323(64.6%) had no dental caries and less than half of the children 177(35.4%) had dental caries.

Table 4.3: Frequency and Percentage distribution of Prevalence of Dental caries among school children

n=177

Sl. No.	DMFT Scoring	Frequency	Percentage (%)
1	Mild (0-8)	54	30.50
2	Moderate (9-12)	116	65.53
3	Severe (17-24)	7	4
4	More Severe (25-32)	0	0

The table 4.3 describes the prevalence of dental caries which was assessed by DMFT scoring which indicates that 116 children (65.536%) had moderate dental caries and 54 children (30.508%) had mild dental caries.

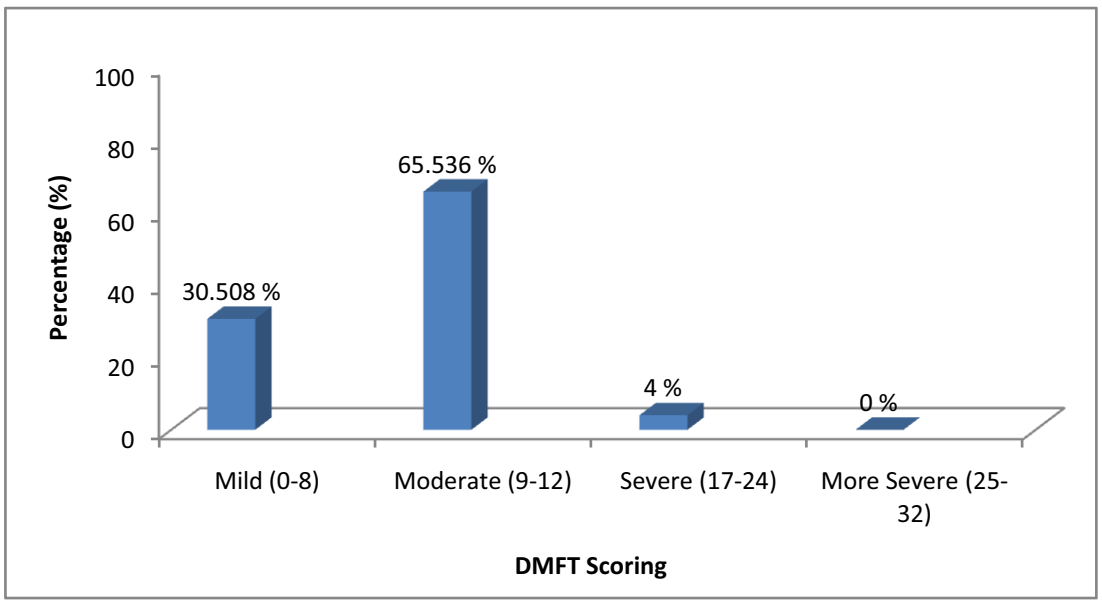

Figure 4.3: Percentage distribution and DMFT scoring of Prevalence of Dental caries among school children

SECTION II

Null hypothesis (Ho): There will not be a significant difference between the pre test and post test knowledge scores on prevention of dental caries among school children.

Table 4.4: Comparison of pre and post test knowledge scores of dental caries among school children

n= 177

Variables	M ± S.D	't' value	Table value	'p' value
Knowledge about dental Caries				
Pretest	7.75 ±1.87	28.77	1.97	*p<0.05
Post-test	11.84 ±0.423			

Note: Statistically significant - *p<0.05

The table 4.4 shows the calculated value of pre and post-test knowledge was 28.77 and the tabulated value was 1.97 at the level of (p<0.05). This shows that there is a significant effectiveness in the play way method of teaching dental hygiene. Hence the research hypothesis is accepted and null hypothesis is rejected.

4.5 Comparison of pre and post test scores of dental hygiene practice among school children.

n = 177

Sl.No	Dental Hygiene Practice		Frequency	Percentage (%)
1	Not performed	Pretest	85	48.02
		Post test	10	5.64
2	Partially performed	Pretest	77	44
		Post test	60	34
3	Correctly performed	Pretest	15	8.47
		Post test	107	60.45

The table 4.4 reveals the pre and post test results of dental hygiene practice in most of the children. During the pretest eighty five (48.02%) children did not perform the brushing technique properly. During the post test most of the children 107 (60.45%) performed the brushing technique correctly.

Null hypothesis (Ho): There will not be a significant difference between the pre test and post test practice scores on prevention of dental caries among school children.

Table 4.6: Comparison of mean pre and post test practice scores of dental hygiene among school children.

n= 177

Variables	M± S.D	't' value	Table value	'p' value
Dental Hygiene Practice				
Pretest	5.93±0.76	8.24	1.97	*p<0.05
Post-test	6.47±0.68			

Note: Statistically significant - *p<0.05

The table 4.5 shows the calculated value of pre and post-test practice scores was 8.24 and the tabulated value was1.97 at the level (p<0.05). This shows that there was a significant improvement in performing brushing techniques correctly. Hence the research hypothesis is accepted and null hypothesis is rejected.

SECTION III

Null hypothesis (Ho): There will not be an association difference between pre test and post test knowledge scores on prevention of dental caries among school children.

Table 4.7: Association of knowledge score on prevention of dental caries among school children with their demographic variables

n = 177

Sl. No	Demographic variable	Inadequate knowledge Less than 4 f (%)	Moderate knowledge 5-8 f (%)	Adequate knowledge 9-12 f (%)	df	x^2 value	Table value	'p' value
1	**Age**				6	53.26	12.59	*0.0001
	5-6 years	5 (2.82)	10 (5.64)	0 (0)				
	7-8 years	0 (0)	28 (15.81)	10 (5.64)				
	9-10 years	4 (2.25)	49 (27.68)	25 (14.12)				
	11-12 years	0 (0)	11(6.214)	35 (19.77)				
2	**Gender**				2	1.66	5.99	0.436 NS
	Male	45 (25.42)	30 (16.94)	3 (1.69)				
	Female	70 (39.54)	25 (14.12)	4 (2.25)				
3	**Previous Dental Visit**				2	4.37	5.99	0.1125 NS
	Yes	34 (19.20)	44 (24.85)	6 (3.38)				
	No	39 (22.03)	53(29.94)	1 (0.56)				
4	**Previous Tooth Ache**				2	4.22	5.99	0.1212 NS
	Yes	6 (3.38)	46 (25.98)	0 (0)				
	No	1 (0.56)	53 (29.94)	0 (0)				

Note : Statistically significant - *p<0.05, NS – not significant

The table 4.8 shows that there is an association between age and knowledge score on prevention of dental caries, where children in the age group of 11-12 years had 35 (19.77%) adequate knowledge. Hence the research hypothesis is accepted and null hypothesis is rejected only in the age group.

Null hypothesis (Ho): There will not be an association difference between the pre test and post test practice scores on prevention of dental caries among school children.

Table 4.8: Association of practice score on prevention of dental caries among school children with their demographic variables.

N = 177

Sl. No	Demographic Variable	Not performed correctly	Partially performed	df	x^2 value	Table value	P Value
		f (%)	f (%)				
1	**Age**						
	5-6 years	3 (1.69)	10 (5.64)	9	20.14	16.91	*0.0.17
	7-8 years	10 (5.64)	2 (14.68)				
	9-10 years	16 (9.03)	65 (36.72)				
	11-12 years	14 (7.90)	33 (18.64)				
2	**Gender**						
	Male	28 (15.81)	58 (32.76)	3	6.762	7.815	0.079 NS
	Female	15 (8.47)	76 (42.93)				
3	**Previous Dental Visit**						
	Yes	20 (11.29)	63 (35.59)	3	1.023	7.815	0.795 NS
	No	23 (12.99)	71 (40.11)				
4	**Previous Tooth Ache**						
	Yes	22 (12.42)	63 (35.59)	3	7.011	7.815	0.071 NS
	No	21 (11.86)	71 (40.11)				

Note : Statistically significant - *p<0.05, NS – not significant

The table 4.8 shows that there is an association between the age and practice scores on prevention of dental caries, where the children in the age group of 9-10 years had 65 (36.72%) performed partially. Hence the research hypothesis is accepted and null hypothesis is rejected.

SECTION IV

Table 4.9: Co-relation between pre-test and post-test knowledge and practice of dental hygiene among school children

n = 177

Variables	Mean value	SD	'r' value	'p' value
Pre-test knowledge and practice	1.819	2.05	0.42	*<0.00001
Post-test knowledge and practice	5.36	0.801	0.006	<0.936826

Note: Statistically not significant- NS

The table 4.10 describes the co relation between the pre test and post test knowledge and practice of dental hygiene among school children. The pre test knowledge and practice score was found to be r=0.42 which was positive co relation. There was no co relation in the post test knowledge and practice.

CHAPTER V

RESULT AND DISCUSSION

The discussion brings the report of this research to a closure. Discussion section "makes sense" of the research results. This is the most important section of any research report. This chapter discusses the major findings of the study. Fones brushing technique helps to prevent further dental caries. The main objective of the study is to assess the prevalence of dental caries among rural children.

5.1 Frequency and Percentage distribution of Demographic profile of Dental caries among school children

In this study most of the children were female 92(52%) was affected by dental caries. This study was contradicted by another study in which 80%of the children were male affected with dental caries **(N. Joshi, 2005).**

5.2 Frequency and Percentage distribution of screening on prevalence of Dental caries among school children

In this study, the total number of children screened were 500 and the majority 323 (32.2%) of children had no dental caries. This study was supported by another study in which only 500 children were affected with dental caries among 1400 population **(Adekoya-Sofowora et al, 2006).**

5.3 Frequency and Percentage distribution of Prevalence of Dental caries among school children

In this study, using the DMFT scoring the prevalence of dental caries among school children was assessed and found to be166 (65.5%) children had moderate dental caries and seven (4%) children had severe dental caries. The study was supported by another study showing the results of 0.45% in males and 0.51% for females who were found to have dental caries by using DMFT index **(Llompart .G, et al., 2014).**

5.4 Comparison of pre and post test knowledge scores of dental caries among school children.

In this study there was a significant difference in the pre test and post test knowledge scores on dental hygiene at $p<0.05$.This was supported by another study in which IEC (Information, Education and Communication) was effective in improving the knowledge level on dental hygiene among school children (**Ms.Saranya Santhosh 2014).**

5.5 Comparison of pre and post test scores of dental hygiene practice among school children.

In this study, while comparing the pre and post test score of dental hygiene there was a significant difference between the tests thus describing the importance of Fones brushing technique among school children affected by dental caries. A similar study supporting this study explains half of the children twenty (50.0%) had poor pre-training knowledge and after training all the children had adequate knowledge on dental hygiene which was statistically significant at the level of $p<0.05$**(A.A Dedeke et al,. 2013).**

5.6 Comparison of mean pre and post test practice scores of dental hygiene among school children.

In this study, there was an effectiveness between the pre test and post test practice scores of dental hygiene at $p<0.05$. A similar study says that, there was a significant increase in oral hygiene scores and decrease in debris scores compared to the baseline in both groups at 1 week and 1 month. After 3 months interval, both the groups showed a decrease in oral hygiene scores from baseline with group B showing highly significant reduction. The mean increase in knowledge score was also significantly better in group B ($p < 0.05$) **(Yogesh Kumar et al,. 2015).**

5.7Association of knowledge score regarding prevention of dental caries among school children with their demographic variables.

In this study, there was an association between age and knowledge score on prevention of dental caries, where children in the age group of 11-12 years had 35 (19.77%) adequate knowledge. This study was contradicted by another study saying there was no association between the dental caries and the BMI **(Yadav .P.K, et al., 2012)**.

5.8 Association of practice score on prevention of dental caries among school children with their demographic variables.

In this study there was an association between the age and practice scores on prevention of dental caries, where the children in the age group of 9-10 years had 65 (36.72%) performed partially. This study was supported by another study in which good dental hygiene practices such as frequency of brushing, frequency of changing the brush, performing inter dental cleaning, and importance of cleaning the tongue helps to prevent further dental caries which was statistically significant at $p<0.001$

(Sara Dakhili et al,. 2015).

5.9 Co-relation between pre-test and post-test knowledge and practice of dental hygiene among school children

In this study, the co relation between the pre test and post test knowledge and practice of dental hygiene among school children. The pre test knowledge and practice score was found to be $r=0.42$ which was positive co relation. There was no co relation in the post test knowledge and practice. A similar study says that there was a co relation between the knowledge and practice scores by using the plug index and gingival index scores at 3 weeks and 6 months follow-up examination **(Ikreet Singh Bal et al,. 2013).**

CHAPTER VI

SUMMARY AND CONCLUSION

A study was conducted to assess the prevalence of dental caries among rural children and effective play way method of teaching was given on dental hygiene in PSG high school, Vedapatti, Coimbatore, Tamilnadu. A total of 177 subjects were selected. The population comprises of children between 6-12years (1^{st} standard to 7^{th} standard). Out of 177 children, 13 children were 5-6 years old, 37 children were 7-8 years old, 80 children were 9-10 years old and 47 children were 11-12 years old.

Using purposive and stratified random sampling technique, the children were selected by interview method using the questionnaires. The data obtained from the oral examination was interpreted for dental caries using the DMFT scale (Decayed, Missing, Filled Teeth due to dental caries)

Paired "t" test was used to find the effectiveness of play way method of teaching dental hygiene and Chi-square χ^2 was used to find the association of knowledge score and practice score on prevention of dental caries among school children with their demographic variables.

6.1 Major findings of the study

- Most of the children 80 (45.19%) had dental caries in the age group of 9-10 years which comprises of 41(23.2%) were female and 39(22.0%) were male.
- Half of the children 92 (52%) had attended the previous dental visit.
- Half of the children 98 (55.36%) experienced previous tooth ache.
- Most of the children 323 (64.6%) were not affected with dental caries.
- The DMFT average score shows that 116 (65.536%) were moderately affected with dental caries.
- There was a significant improvement in the knowledge score $t = 28.77$ ($p<0.05$).
- There was a significant improvement in the practice score through Fones brushing $t = 8.24$ ($p<0.05$).

- There was an association between the knowledge score and age group among school children with dental caries. ($\chi^2 = 53.26$ at $P<0.05$)
- Comparison of the pre and post test results of dental hygiene practice shows that 107 (60.45%) children performed proper dental hygiene practice.
- There was an association between the practice score and age group among school children with dental caries. ($\chi^2 = 20.14$ at $P<0.05$)
- There was a co relation to the pretest knowledge and practice regarding dental caries.($r = 0.42$ at $P<0.05$)

6.2 Conclusion

The education has a vital role in improving the knowledge of the students regarding dental hygiene. Since school education is an integral part of medical and dental services, teachers can play an important role in health educational programme, making the children an important channel for disseminating the health information to the families and the communities. The student community needs to be strengthened with the treasure of knowledge especially with health related issues. In this study, it was indented to assess the prevalence of dental caries among rural children and conduct an effective play way method of teaching dental hygiene at PSG high school, Vedapatti, Coimbatore. The report of the study is found to have a significant effect on play way method of teaching the Fones brushing technique to improve the dental hygiene practice among school children.

6.3 Nursing Implication:

The present study has implications for nursing practice, nursing education, nursing administration and nursing research.

6.3.1 Nursing practice:

- Education and awareness on dental care could be provided for individual, family and community to achieve optimum oral hygiene.
- Awareness program on dental care and prevention of dental caries can be conducted periodically in the hospital.
- Practice on screening children for dental caries can be done periodically.

6.3.2 Nursing Education:

- Nursing curriculum can be modified with an increase in the emphasis on dental care for children in child health nursing.
- Recommendation of short-term course of pediatrics nursing for dental hygiene.
- Students can also be trained to work in pediatrics care under dental hygiene practice.

6.3.3 Nursing Administration:

- People at the administrator position can make necessary policies to implement the concept of pediatric dental hygiene.
- Administrator can organize in-service education programs on dental hygiene practice.

6.3.4 Nursing Research:

- Studies can be done by comparing different interventions for improving dental hygiene among school children.
- The study provides awareness among school children regarding dental caries.

6.4 Limitations:

- The study is limited to children in the age group of 6-12 years.

6.5 Recommendations:

- A comparative study can be conducted on the prevalence of dental caries among rural and urban primary school children.
- A follow-up study can be conducted to determine the effectiveness of the play way method of teaching on dental hygiene for school children.

REFERENCES

1. Achar. st and Viswanathan (1982) *"Text book of pediatrics"* (2nd edition) orient Longman, Bombay.
2. Ajay Shakya et al.,(2013) Dental caries prevalence, oral health knowledge and practice among indigenous Chepang school children of Nepal. *Journal of BMC oral health. May 14;13:20.* doi: 10.1186/1472-6831
3. Behrman, Richard K et al., Nelson (1983) *"Text book of pediatrics"* (12th edition), W.B. Saundens company, Philadelphia.
4. Benjamin W. Chaffee et al.,(2015).Feeding practice in infancy associated with caries incidence in early childhood. *Community dent oral epidemiology journal. Aug;43(4):338-48.* doi: 10.1111/cdoe.12158.
5. Chinn, Jacobs et al., (1983**)** *"Theory and nursing",*A systematic approach C.V. Mosby company , London,.
6. Carneiro .L, Kabulwa .M, Makyao .M, Mrosso .G, Choum .R, (2011) Oral health knowledge and practices of secondary school students, tanga. *International Journal of Dentistry.23 September. 3 October* doi. 10.1155/2011/806258
7. Dorothy R Marlow et al., (1988) **"***Text book of pediatric nursing"* , (6th edition) W.B.Saunders international publication, South Asia.
8. Delia Burnett et al., (2015) Oral health status, knowledge, attitudes and behaviors among marginalized children in Addis Ababa, Ethiopia. *Journal of child health care. Feb 23.* doi:10.1177/1367493515569328
9. Dhar.V et al.,(2007). Prevalence of dental caries and treatment needs in the school-going children of rural areas in udaipur district. *Journal of Indian socio pedod preventive denitistry. Jul-Sep;25(3):119-21.* DOI: 10.4103/0970-4388.36560
10. Gentrude Torres, (1986) *"Therotical foundation of nursing",* Appleton century, Crofts.

11. Gandeh MB, Milaat WA (2000). Dental caries among school children: report of a health education campaign in Jeddah, Saudi Arabia.*East Mediterranian health journal. Mar-May;6(2-3):396-401.*
12. Gaidhane A.M, (2013) Prevalence and determinant of early childhood caries among the children attending the Anganwadis of Wardha district, India. *Indian journal of dental research. Mar-Apr;24(2):199-205.* doi: 10.4103/0970-9290.116677.
13. Joseph et al.,(2015) Prevalence and Measurement of Dental Caries in Young Children. *Journal of pediatric dentistry. Jun-30.*
14. Jaime .R.A et al., (2015).Oral health education program on dental caries incidence for school children. *Journal of clinical pediatric denistryt. April 39(3):277-83.* doi: 10.17796/1053-4628-39.3.277.
15. Joshi.N et al.,(2005). Prevalence of dental caries among school children in Kulasekharam village: a correlated prevalence survey. *Journal of Indian socio pedod preventive denitistry. Sep;23(3):138-40.* doi: 10.4103/0970-4388.16887
16. Kirkwood B.R. (1989) *"Essentials of medical statistics"*, balckwell scientific publication, London.
17. Kothari (1988) *"Research methodology method and techniques"* Wiley eastern limited.
18. Kowash MB (2015). Severity of early childhood caries in preschool children attending Al-Ain Dental Centre, United Arab Emirates. *Eur Archives Paediatric Dentistry journal. Aug;16(4):319-24.* doi: 10.1007/s40368-014-0164-6.
19. Kumar.P et al., (2014). Cross-sectional evaluation of awareness of prevention of dental caries among general pediatricians in ghaziabad district, india. Journal of *Annals of medical and health science research. Sep;4(Suppl 3):S302-6.* doi: 10.4103/2141-9248.141976.
20. Lingen S and Velfar H (1994) *"The complete book of child health"* (1st edition) Marshell causing its perwork ltd, Newdelhi.

21. Leandro Silva Marques, et al., (2015).Impact of untreated dental caries and its clinical consequences on the oral health- related quality of life of schoolchildren aged 8-10 years. *Journal of quality life research.Jul2.* doi: 10.1007/s11136-015-1059-7.

22. Llompart.G, et al.,(2010). Oral health in 6-year-old schoolchildren from Berisso, Argentina: Falling far short of WHO goals. *Journal of Medicina Oral Patologia Oral Cirugia Bucal. Jan 1;15 (1):e101-5.* doi:10.4317/medoral.15.e101

23. Meenu Mittal et al.,(2014).Oral health status of 5 years and 12 years old school going children in rural Gurgaon, India: an epidemiological study. *Journal of Indian* socio *pedod preventive denitistry. Jan-Mar; 32(1):3-8.* doi. 10.4103/0970-4388.127039

24. Nelson W.E, Behrman R.E, Kleigman R.M, Aruin A.M (1996) *"Text book of pediatric"*, (15th edition) W.B. Saundens company, Bangalore.

25. Narendar Dawani et al., (2012) Prevalence and factors related to dental caries among pre-school children of Saddar town, Karachi, Pakistan: a cross-sectional study. *Journal of BMC oral health. 27 December.* DOI: 10.1186/1472-6831-12-59

26. O.O.Olatosi et al., (2013). Prevention of dental caries: Knowledge, practice and opinion of pediatricians in Lagos. *West African Journal of medicine. Jan-Mar;32(1):52-6.*

27. Okemwa KA, Gatongi PM, Rotich JK (2010). Oral health knowledge and oral hygiene practices among primary school children age 5-17 years in a rural area of Uasin Gishu district, Kenya. *East African Journal of public health. Jun;7(2):187-90.* DOI: 10.4314/eajph.v7i2.64723

28. Okeigbemen SA,(2015).Dental caries experience and oral health behavior among 7-15 years old children attending military and paramilitary school in Benin city. *Savannah Journal of medical research- vol 4,No 1.* doi. 10.4314

29. Patricia A, Potter Ance G.Perry *" Basic nursing theory and practice"* St Louis Thec mosby co.33

30. Polit D and Hungler B (1986) *"Introduction to research methods"* J.B. Lippincott company

31. Pratyay Pratim Datta et al., (2013). Prevalence of dental caries among school children inSundarban, India. *Journal of epidemiology. September 12.* doi. 10.4103/0970-4388.16887

32. Poornima. P, et al., (2015) Evaluation of the knowledge, attitude and awareness in prevention of dental caries amongst pediatricians. *International journal of community medicine and public health. Feb;2(1):64-70.* doi: 10.5455/2394-6040

33. Roger Chou, MD et al.,(2014). Prevention of dental caries in children younger than 5 years old. *Journal of Agency for healthcare research and quality. May*

34. Sandra, M.Netina (1988) *"The Lippincott manual of nursing practice"* (6th edition) philadelohiz.

35. Stanhope et al., (1988) *"Community health nursing"* J.B.Lippincott company, Philadelphia.

36. Sebastian Paris et al., (2015).Dental caries, fluorosis, and oral health behavior of children form Heart, Afganistan. *Community dentistry oral epidemiology journal. Dec;43 (6):521-31.* doi: 10.1111/cdoe.12177.

37. Saravanan .S et al., (2008) Caries prevalence and treatment needs of rural school children in Chidambaram Taluk, Tamil Nadu, South India. *Indian Journal of dental research. Volume :19, Issue:3, Page:186-190.*

38. Taani DQ (2002). Relationship of socioeconomic background to oral hygiene, gingival status, and dental caries in children. *Quintessence International Journal. Mar;33(3):195-8.*

39. Zafer Azizi , (2014)Prevalence of Dental Caries in Primary Dentition in 4- to 5-Year-Old Preschool Children in Northern Palestine. *International Journal of Dentistry.23 September.* doi:10.1155/2014/839419

ANNEXURE-I

PSG HIGH SCHOOL

VEDAPATTI * COIMBATORE - 641 007. Phone : 0422 2476782

L. GOPALAKRISHNAN
PRESIDENT

N.C. NANDAGOPALAN
SECRETARY

M.R. SHIVA KUMAR
HEADMASTER

Date 11.02.2015

To

The Vice-Principal, (Research Co-ordinator and Guide)

PSG College of Nursing,

Coimbatore 641 004.

Respected Madam,

Subject :- Your permission letter dated 05/02/2015 – Regarding.

*****

We are happy to inform you that we are giving permission to undergo Pilot study for Miss. S. Cinku Angeline. , student of PSG College of Nursing from 23/02/2015 to 27/02/2015 (2.00pm to 4.00pm).

Thanking you,

P.S.G. HIGH SCHOOL CBE-7 VEDAPATTI

Yours Faithfully,

11/02/15

(M.R. SHIVAKUMAR)

HEAD MASTER
P.S.G. High School
Vedapatti, Coimbatore - 7

PSG PRIMARY SCHOOL

VEDAPATTI * COIMBATORE - 641 007. PHONE : 0422 2476782

L. GOPALAKRISHNAN	N.C. NANDAGOPALAN	K. RAVI
PRESIDENT	SECRETARY	HEADMASTER

Date : ...11.02.2015.....

To

The Vice-Principal, (Research Co-ordinator and Guide)

PSG College of Nursing,

Coimbatore 641 004.

Respected Madam,

Subject :- Your permission letter dated 05/02/2015 – Regarding.

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Thanking you,

Yours Faithfully,

(K. RAVI) 11/2/15

Head Master

P.S.G. PRIMARY SCHOOL

VEDAPATTI,

COIMBATORE - 641 007.

ANNEXURE-II

PSG Institute of Medical Sciences & Research
Institutional Human Ethics Committee
Recognized by The Strategic Initiative for Developing Capacity in Ethical Review (SIDCER)
POST BOX NO. 1674, PEELAMEDU, COIMBATORE 641 004, TAMIL NADU, INDIA
Phone : 91 422 - 2598822, 2570170, Fax : 91 422 - 2594400, Email : ihec@psgimsr.ac.in

To
Ms Cinku Angeline S
I M Sc Nursing
PSG College of Nursing
Coimbatore

Ref: Project No.15/085

Date: March 27, 2015

Dear Ms Cinku Angeline,

Institutional Human Ethics Committee, PSG IMS&R reviewed and discussed your application dated 18.02.2015 to conduct the research study entitled *"A study to assess the prevalence of dental caries among rural children and an effectiveness of play way method of teaching on dental hygiene in selected school children at Coimbatore"* during the IHEC meeting held on 27.02.2015.

The following documents were reviewed and approved:

1. Project Submission form
2. Study protocol
3. Assent form
4. Parental consent form
5. Data collection tool
6. Permission letter from concerned Head of the Institutions
7. Current CVs of Principal investigator, Co-investigator
8. Budget

The following members of the Institutional Human Ethics Committee (IHEC) were present at the meeting held on 27.02.2015 at IHEC Secretariat, PSG IMS & R between 10.00 am and 11.00 am:

Sl. No.	Name of the Member of IHEC	Qualification	Area of Expertise	Gender	Affiliation to the Institution Yes/No	Present at the meeting Yes/No
1	Dr. P. Sathyan (Chairperson, IHEC)	DO, DNB	Clinician (Ophthalmology)	Male	No	Yes
2	Dr. S. Bhuvaneshwari (Member-Secretary, IHEC)	MD	Clinical Pharmacology	Female	Yes	Yes
3	Dr. S.Shanthakumari	MD	Pathology, Ethicist	Female	Yes	Yes
4	Dr. D. Vijaya	M Sc, Ph D	Basic Medical Sciences (Biochemistry)	Female	Yes	Yes

The study is approved in its presented form. The decision was arrived at through consensus. Neither PI nor any of proposed study team members were present during the decision making of the IHEC. The IHEC functions in accordance with the ICH-GCP/ICMR/Schedule Y guidelines. The approval is valid until one year from the date of sanction. You may make a written request for renewal / extension of the validity, along with the submission of status report as decided by the IHEC.

PSG Institute of Medical Sciences & Research
Institutional Human Ethics Committee
Recognized by The Strategic Initiative for Developing Capacity in Ethical Review (SIDCER)
POST BOX NO. 1674, PEELAMEDU, COIMBATORE 641 004, TAMIL NADU, INDIA
Phone : 91 422 - 2598822, 2570170, Fax : 91 422 - 2594400, Email : ihec@psgimsr.ac.in

Following points must be noted:

1. IHEC should be informed of the date of initiation of the study
2. Status report of the study should be submitted to the IHEC every 12 months
3. PI and other investigators should co-operate fully with IHEC, who will monitor the trial from time to time
4. At the time of PI's retirement/intention to leave the institute, study responsibility should be transferred to a colleague after obtaining clearance from HOD, Status report, including accounts details should be submitted to IHEC and extramural sponsors
5. In case of any new information or any SAE, which could affect any study, must be informed to IHEC and sponsors. The PI should report SAEs occurred for IHEC approved studies within 7 days of the occurrence of the SAE. If the SAE is 'Death', the IHEC Secretariat will receive the SAE reporting form within 24 hours of the occurrence
6. In the event of any protocol amendments, IHEC must be informed and the amendments should be highlighted in clear terms as follows:
   a. The exact alteration/amendment should be specified and indicated where the amendment occurred in the original project. (Page no. Clause no. etc.)
   b. Alteration in the budgetary status should be clearly indicated and the revised budget form should be submitted
   c. If the amendments require a change in the consent form, the copy of revised Consent Form should be submitted to Ethics Committee for approval
   d. If the amendment demands a re-look at the toxicity or side effects to patients, the same should be documented
   e. If there are any amendments in the trial design, these must be incorporated in the protocol, and other study documents. These revised documents should be submitted for approval of the IHEC and only then can they be implemented
   f. Any deviation-Violation/waiver in the protocol must be informed to the IHEC within the stipulated period for review
7. Final report along with summary of findings and presentations/publications if any on closure of the study should be submitted to IHEC

Kindly note this approval is subject to ratification in the forthcoming full board review meeting of the IHEC.

Thanking You,

Yours Sincerely,

SECRETARY
PSG IMS&R
COIMBATORE-641004.
INSTITUTIONAL HUMAN ETHICS COMMITTEE

Dr S Bhuvaneshwari
Member - Secretary
Institutional Human Ethics Committee

ANNEXURE-III

Institutional Human Ethics Committee
PSG Institute of Medical Sciences and Research, Coimbatore
Assent to be in a Research Study
For children between 7-18 years old

I want to tell you about something called a research study. A research study is **"Prevalence of dental caries among rural children and effectiveness of play way method of teaching on dental hygiene in selected school children at PSG high school , Vedapatti, Coimbatore".**

The objectives of this study are:

Primary Objective:

- To assess the knowledge of dental caries among rural children.
- To assess the knowledge regarding dental hygiene among school children.

Secondary Objective:

- To determine the effectiveness of play way method of dental hygiene among school children.
- To find out the association of knowledge score regarding prevention of dental caries among school children with their demographic variable.

Intervention: By showing cartoon video and brushing technique to improve the dental hygiene.

Sample size: 100

Study volunteers / participants are (specify population group & age group): Children who Have dental caries.

Location: At vedapatty PSG high school.

Benefits from this study: To improve dental hygiene.

Risks involved by participating in this study: there is no risk.

Why are we meeting with you?

I am doing a research study with cartoon and brushing techniques' which is used to improve dental hygiene of school children. So, I have come to meet you today to analyse the same. After tell you about this study, I will ask if you didn't like to be in this study or not.

Why are we doing this study?

I want to find out whether the use of cartoon video and brushing technique improves the dental hygiene of school children. So am getting information from lots of boys and girls like you. In the whole study, there will be about 100 children.

What will happen to you if you are in this study?

If you agree to participate in this study,

I will make you to watch a cartoon video and show brushing technique.

Will this study hurt?

No. this study will not hurt you in anyway.

Will you get better if you are in this study?

No, this study won't make you feel better or get well. But I will might find out something that will help other children like you later.

Will everybody come to know about my condition? (Confidentiality)

Iwill not tell other people that you are in this research and we won't share information about you to anyone who does not work in the research study.

Is this bad or dangerous for me? (Risks involved)

No. There is no risk in this study.

Do I get anything for being in the research?

No.

Will you tell me the results?

The findings of this research will be shared with you.

Do you have any questions?

You can ask questions any time. You can ask now. You can ask later. You can talk to me or you can talk to someone else.

Do you have to be in this study?

No, you don't. No one will force you if you don't want to do this. If you don't want to be in this study just tell us (or) if you do want to be in the study, just tell us and remember that you can say yes now and change your mind later. It's up to you. *This will not affect in any way your future treatmentl.*

Who can I talk to or ask questions to?

You can talk to me anytime in this Number 9489290667.

If you don't want to be in this study just tell us (or) If you want to be in this study just tell us. This will not affect in any way your future treatment. I will give you a copy of this form to keep with you.

SIGNATURE OF PERSON CONDUCTING ASSENT DISCUSSION

I have explained the study to _____(*print name of child here*) in language he/she can understand, and the child has agreed to be in the study.

_____ _____

Signature of Person Conducting Assent Discussion Date

_____S.CINKU ANGELINE _____
Name of Person Conducting Assent Discussion (*print*)

Part 2: Certificate of Assent

I have read this information (or had the information read to me) I have had my questions answered and know that I can ask questions later if I have them.
I agree to take part in the research.

OR

do not wish to take part in the research and I have not signed the assent below._____

(initialed by child/minor)
Only if child assents:

Print name of child _____

Signature of child: _____

Date:_____
day/month/year

If illiterate:
A literate witness must sign (if possible, this person should be selected by the participant, not be a parent, and should have no connection to the research team). Participants who are illiterate should include their thumb print as well. I have witnessed the accurate reading of the assent form to the child, and the individual has had
the opportunity to ask questions. I confirm that the individual has given consent freely.

*Print name of witness (not a parent)*_____ *AND Thumb print of participant*

Signature of witness _____
Date _____
Day/month/year

I have accurately read or witnessed the accurate reading of the assent form to the potential participant, and the individual has had the opportunity to ask questions. I confirm that the individual has given assent freely.
Print name of researcher_____

Contact no-principal investigator no:9489290667
IHEC NO:0422 2570170 Extn:5818

Institutional Human Ethics Committee
PSG Institute of Medical Sciences and Research, Coimbatore
Parental Consent Form

Title of Study: "Prevalence of dental caries among rural children and effectiveness of play way method of teaching on dental hygiene in selected school children at PSG high school, Vedapatti, Coimbatore".
Name of the Principal Investigator: S.CINKU ANGELINE.

Department: Child health nursing.

Your (son/daughter/child/infant/adolescent youth) is invited to participate in a study of **"Prevalence of dental caries among rural children and effectiveness of play way method of teaching on dental hygiene in selected school children at PSG high school , Vedapatti, Coimbatore".**

My name is S.Cinku Angeline_and I am a M.Sc Nursing 1st year,Child Health Nursing department in College of nursing at PSG Institute of Medical Sciences and Research, Coimbatore. I am asking for permission to include your (son/daughter/child/infant/adolescent youth) in this study because I expect to have …… (Number) participants in the study.If you allow your child to participate, Any information that is obtained in connection with this study and that can be identified with your (son/daughter/child/infant/adolescent youth) will remain confidential and will be disclosed only with your permission. His or her responses will not be linked to his or her name or your name in any written or verbal report of this research project. Your decision to allow your (son/daughter/child/infant/adolescent youth) to participate will not affect your or his or her present or future relationship with PSGIMS&R or PSG Hospitals .If you have any questions about the study, please ask me. If you have any questions later, call me at9489290667.You may keep a copy of this consent form. You are making a decision about allowing your (son/daughter/child/infant/adolescent youth) to participate in this study. Your signature below indicates that you have read the information provided above and have decided to allow him or her to participate in the study. If you later decide that you wish to withdraw your permission for your (son/daughter/child/infant/adolescent youth) to participate in the study, simply tell me. You may discontinue his or her participation at any time. *This will not affect in any way your future treatment in this hospital.*

Printed Name of (son/daughter/child/infant/adolescent youth)

Signature of Parent(s) or Legal Guardian with Date

Signature of Investigator with / Date

Contact no-principal investigator no:9489290667
IHEC NO:0422 2570170 Extn:5818

மனித நெறிமுறைக் குழு, பூ சா கோ மருத்துவக் கல்லூரி மற்றும் ஆராய்ச்சி நிறுவனம்

ஆராய்ச்சியில் பங்கு பெறுவதற்கான ஒப்புதல் படிவம்

7 முதல் 18 வயதிற்கு உட்பட்ட குழந்தைகளுக்கானது

நாங்கள் எதற்காக உங்களை சந்திக்கிறோம்?

நாங்கள் மேற்கொள்ள இருக்கும் ஆய்வினைப் பற்றி உங்களுக்கு கூற உள்ளோம். ஆய்வு என்பது மருத்துவர்கள் உடல் நலம் மற்றும் வியாதிகள் குறித்து தகவல்கள் சேகரித்தல் ஆகும். செவிலியர் **சின்கு ஏஞ்சலின் .சா,** மற்றும் சிலர் சேர்ந்து **"கிராமப்பகுதியில் வசிக்கும் பள்ளி முன் பருவ மற்றும் பள்ளிப்பருவக் குழந்தைகள் மத்தியில் பரவியிருக்கும் பற்சொத்தையின் விகிதத்தை ஆராய்தல் மற்றும் விளையாட்டு முறைக் கல்வி முலம் பற்சுத்தத்தை மேம்படுத்துவதற்கான ஆய்வு"** பற்றி மேலும் தகவல்கள் அறிந்து கொள்ள ஒரு ஆய்வு மேற்கொள்ள உள்ளனர். அதனைப் பற்றி நாங்கள் உங்களுக்கு விவரமாகக் கூறிய பின் இந்த ஆய்வில் பங்கேற்பது பற்றி உங்கள் கருத்தினைத் தெரிவிக்கலாம்.

நாங்கள் எதற்காக இந்த ஆய்வினை மேற்கொள்கிறோம்?

நாங்கள் கிராமப்புற பகுதியில் வசிக்கும் குழந்தைகளிடையே பரவியிருக்கும் பற்சொத்தையின் விகிதத்தை பற்றி கண்டுபிடிக்க முயற்சிக்கிறோம். எனவே உங்களைப்போன்ற பல குழந்தைகளிடம் தகவல் சேகரிக்க உள்ளோம். இந்த ஆய்வில் சுமார் 100 மற்றும் அதற்கு மேற்பட்ட குழந்தைகள் பங்கு பெற உள்ளனர்.

இந்த ஆய்வில் நீங்கள் பங்கேற்றால் என்ன நடக்கும்?

நீங்கள் **பற்சிதைவை** பற்றிய சில கேள்விகளுக்கு பதிலளிக்க வேண்டும்.

இந்த ஆய்வினால் வலி ஏற்படுமா?

இல்லை

இந்த ஆய்வில் பங்கேற்பதால் நலம் அடைவீர்களா?

இல்லை. இதனால் நீங்கள் நலமடைய முடியாது. ஆனால், செவிலியர்கள் இந்த ஆய்வின் மூலம் பிற்காலத்தில் உங்களைப் போன்ற குழந்தைகளுக்கு உபயோகப் படும் வகையில் சில வழிமுறைகளைக் கண்டுபிடிக்கலாம்.

எல்லோருக்கும் என் நிலை பற்றி தெரிய வருமா? (நம்பகத்தன்மை)

நீங்கள் இந்த ஆய்வில் பங்கேற்பதை நாங்கள் மற்றவர்களுக்குத் தெரிவிக்க மாட்டோம். உங்களைப் பற்றிய தகவல்களை ஆய்வில் சம்பந்தப் படாத நபர்களுக்குத் தெரிவிக்க மாட்டோம்.

இந்த ஆய்வு எனக்கு கெடுதல் அல்லது ஆபத்து விளைவிக்குமா?

இல்லை

இந்த ஆய்வில் பங்கேற்பதால் எனக்கு எதுவும் கிடைக்குமா?

இல்லை

நீங்கள் எனக்கு இந்த ஆய்வின் முடிவுகளைத் தெரிவிப்பீர்களா?

நீங்கள் விருப்பப் பட்டால், இந்த ஆய்வின் முடிவுகள் உங்களுக்குத் தெரியப் படுத்தப்படும்.

உங்களுக்கு ஏதேனும் கேள்விகள் உள்ளதா?

நீங்கள் இப்பொழுதோ பின்னரோ எந்த நேரத்திலும் உங்கள் சந்தேகங்களைக் கேட்கலாம். என்னிடமோ அல்லது இந்த ஆய்வின் பிற ஆராய்ச்சியாளர்களிடமோ உங்கள் சந்தேகங்களைக் கேட்கலாம்.

இந்த ஆய்வில் நீங்கள் பங்கேற்க வேண்டுமா?

இல்லை. இதில் பங்கேற்காததால் உங்களை யாரும் எதுவும் செய்யப்போவதில்லை. உங்களுக்கு விருப்பம் இல்லை என்றால் எங்களிடம் தெரிவிக்கலாம். நீங்கள் பங்கேற்க விரும்பினாலும் எங்களிடம் தெரிவிக்கலாம். நீங்கள் இப்பொழுது ஒத்துக் கொண்டு பின்னர் மனம் மாறி ஆய்விலிருந்து விலகுவதானால் விலகலாம் என்பதையும் மனதில் கொள்ளவும். இது நீங்கள் பிற்காலத்தில் மருத்துவமனையில் பெறும் சிகிச்சையை எந்த விதத்திலும் பாதிக்காது என்பதையும் நாங்கள் உங்களுக்குத் தெரிவித்துக் கொள்ள விரும்புகிறோம்.

நான் யாரிடம் பேச அல்லது சந்தேகம் கேட்க முடியும்?

உங்களுக்கு ஆய்வில் ஏதேனும் கேள்விகள் இருந்தால் என்னை கேளுங்கள். இந்த ஆய்வு தொடர்பாக உங்கள் (மகன் / மகள் / குழந்தைகள்) பற்றி எந்த கேள்விகள் அல்லது கவலைகள் இருந்தால் என்னை அழைக்கவும் (9489290667).

உங்களுக்கு விருப்பம் இல்லை என்றால் எங்களிடம் தெரிவிக்கவும். நீங்கள் பங்கேற்க விரும்பினால் எங்களிடம் தெரிவிக்கவும்.

ஒப்புதல் கலந்துரையாடல் நடத்திய நபரின் கையொப்பம்

நான் _____ என்னும் குழந்தைக்குப் புரியும் மொழியில் இந்த ஆய்வினைப் பற்றி விவரித்துள்ளேன். குழந்தை இந்த ஆய்வில் பங்கு பெற ஒப்புக் கொண்டுள்ளது.

கலந்துரையாடல் செய்தவர் கையொப்பம் _____ தேதி

கலந்துரையாடல் செய்தவர் பெயர் _____

பாகம் 2-ஒப்புதல் சான்றிதழ்

நான் இந்த தகவலைப் படித்துத் தெரிந்து கொண்டேன் (படித்துத் தெரிவிக்கப்பட்டுள்ளேன்). எனது சந்தேகங்களைக் கேட்டு தெளிவு படுத்திக் கொண்டேன். பிற்காலத்திலும் எனது சந்தேகங்களைக் கேட்கலாம் என்பதையும் அறிந்து கொண்டேன்.

நான் இந்த ஆய்வில் பங்கு பெற விரும்புகிறேன்

(அல்லது)

எனக்கு இந்த ஆய்வில் பங்கேற்க விருப்பம் இல்லை, நான் கீழ் கண்ட ஒப்புதல் படிவத்தில் கையெழுத்திடவில்லை _____ (குழந்தையின் கையொப்பம்)

குழந்தை ஒப்புக்கொண்டால் மட்டும்

1. குழந்தையின் பெயர்
2. குழந்தையின் கையொப்பம்
3. தேதி

படிப்பறிவில்லாதவர்களாக இருந்தால்

ஒரு படித்த சாட்சி (குழந்தையின் பெற்றோரல்லாத, பங்கேற்பவரால் தேர்ந்தெடுக்கப்பட்ட ஒரு நபர்) கையொப்பமிடவேண்டும். படிப்பறிவில்லாதவர் தங்கள் கைநாட்டைப் பதிக்கவேண்டும். குழந்தையிடம் ஒப்புதல் பெறும் பொழுது இந்தப் படிவம் படிக்கப் பட்டதை நான் உடனிருந்து கவனித்தேன். பங்கேற்பாளர் தனது சந்தேகங்களைக் கேட்டு தெரிந்து கொள்ள வாய்ப்பளிக்கப்பட்டது என்பதை அறிந்து கொண்டேன். பங்கேற்பாளர் தனது ஒப்புதலை தனது சொந்த விருப்பத்தில் தான் தெரிவித்தார் என்று +றுதியளிக்கிறேன்.

சாட்சியின் பெயர் _____ பங்கேற்பவரின் கைநாட்டு

சாட்சியின் கையெழுத்து _____

தேதி _____

நான் பங்கேற்பாளருக்கு ஒப்புதல் படிவத்தை முழுவதும் படித்துக் காட்டினேன் / படித்துக் காட்டியதை கவனித்தேன். பங்கேற்பாளர் தனது சந்தேகங்களைக் கேட்டு தெரிந்து கொள்ள வாய்ப்பளிக்கப்பட்டது என்பதை அறிந்து கொண்டேன். பங்கேற்பாளர் தனது ஒப்புதலை தனது சொந்த விருப்பத்தில் தான் தெரிவித்தார் என்று உறுதியளிக்கிறேன்.

ஆய்வாளரின் பெயர் _____

பெற்றோர் ஒப்புதல் படிவம்

தலைப்பு:

"கிராமப்பகுதியில் வசிக்கும் பள்ளி முன் பருவ மற்றும் பள்ளிப்பருவக் குழந்தைகள் மத்தியில் பரவியிருக்கும் பற்சொத்தையின் விகிதத்தை ஆராய்தல் மற்றும் விளையாட்டு முறைக் கல்வி முலம் பற்சுத்தத்தை மேம்படுத்துவதற்கான ஆய்வு

பிராதான அனுசரணையாளர் பெயர்: **ச**
துறை: குழந்தைகள் நல மருத்துவம்

நான் இந்த ஆய்வில் உங்கள் (மகன் / மகள் / குழந்தைகள்) சேர்க்க அனுமதி கேட்கிறேன்.

என் பெயர்.**சா,** முதுகலை செவிலியர், PSG IMS&R, கோயமுத்தூர்.

என் ஆய்வு குறிக்கோள்:

- கிராமப்பகுதியில் வசிக்கும் பள்ளி முன் பருவ மற்றும் பள்ளிப்பருவக் குழந்தைகள் மத்தியில் பரவியிருக்கும் பற்சொத்தையின் விகிதத்தை ஆராய்தல் மற்றும் விளையாட்டு முறைக் கல்வி மூலம் பற்சுத்தத்தை மேம்படுத்துவது.

நான் இந்த ஆய்வில் உங்கள் (மகன் / மகள் / குழந்தைகள்) சேர்க்க அனுமதி கேட்கிறேன், ஏனெனில் நான் இந்த ஆய்வில் 100 குழந்தைகள் பங்கேற்பார்கள் என்று எதிர்பார்க்கிறேன். நீங்கள் உங்கள் குழந்தையை பங்கேற்க சில கேள்விகள் கேட்கப்படும்.

இந்த ஆய்வு தொடர்பாக உங்கள் (மகன் / மகள் / குழந்தைகள்) பெறப்பட்ட தகவல்கள் இரகசியமாக இருக்கும். உங்கள் அனுமதியுடன் மட்டுமே மற்றவர்கள் அறிந்து கொள்ள முடியும்.

உங்கள் (மகன் / மகள் / குழந்தைகள்) தற்போது பங்கேற்க அனுமதி கொடுக்கும் முடிவுகள் PSG IMS&R மருத்துவமனையின் உறவில் எதிர்காலத்தில் எந்த வித பாதிப்பும் இருக்காது.

உங்களுக்கு ஆய்வில் ஏதேனும் கேள்விகள் இருந்தால் என்னை கேளுங்கள். இந்த ஆய்வு தொடர்பாக உங்கள் (மகன் / மகள் / குழந்தைகள்) பற்றி எந்த கேள்விகள் அல்லது கவலைகள் இருந்தால் என்னை அழைக்கவும் (9489290667).

இந்த ஒப்புதல் படிவத்தில் ஒரு பிரதியை நீங்கள் பெற்றுக்கொள்ளலாம். நீங்கள் இந்த ஆய்வில் பங்கேற்க உங்கள் (மகன் / மகள் / குழந்தைகள்) முடிவுசெய்கிறீர்களானால் கீழே கையெழுத்திட்டு அதற்கான ஒப்புதலை அளிக்க வேண்டும்.

எந்த நேரத்தில் வேண்டுமானாலும் ஆய்வாளரிடம் தெரிவித்துவிட்டு ஆய்விலிருந்து விலகிக்கொள்ளும் உரிமை உங்களுக்கு உண்டு.

பெயர் (மகன் / மகள் / குழந்தைகள்):

பெற்றோர் அல்லது சட்டப்பூர்வமான பாதுகாவலரின் கையொப்பம் / தேதி

ஆய்வாளரின் கையொப்பம் / தேதி

ANNEXURE-IV

Tool for data collection

Section A : Demographic Variables

1. Sample Numbers :

2. Age :

3. Gender :

4. Have you visited the dentist before?

Yes { } No { }

5. Weather you have experienced tooth ache earlier?

Yes { } No { }

Treatment undertaken if any?

Section B:

Assessment of Prevalence of Dental Caries Oral examination to 6-12yrs children

1. Total number of teeth present { }
2. Number of milk teeth present { }
3. Number of permanent teeth present { }
4. Number of tooth decay
    a. Partial { }
    b. Complete { }
5. Number of teeth missing
    a. Milk teeth
    b. Permanent teeth
    c. Due to dental caries
    d. Other than dental caries
6. Number of tooth filled { }
7. Whether there is tooth pain?

    Yes { } No { }
8. Whether there is halitosis {Foul smell}?

    Yes { } No { }
9. Whether there is discoloration due to flurosis {white discoloration}

    Yes { } No { }
10. Whether there is bleeding gums?

    Yes { } No { }

Key for oral examination

Calculation

Method Used:- DMFT(Decayed,Missed,Filling,Teeth due to dental caries)

The mean number of teeth or tooth surfaces decayed, missing or filled because of decay among school children.

D-Decayed

M-Missing

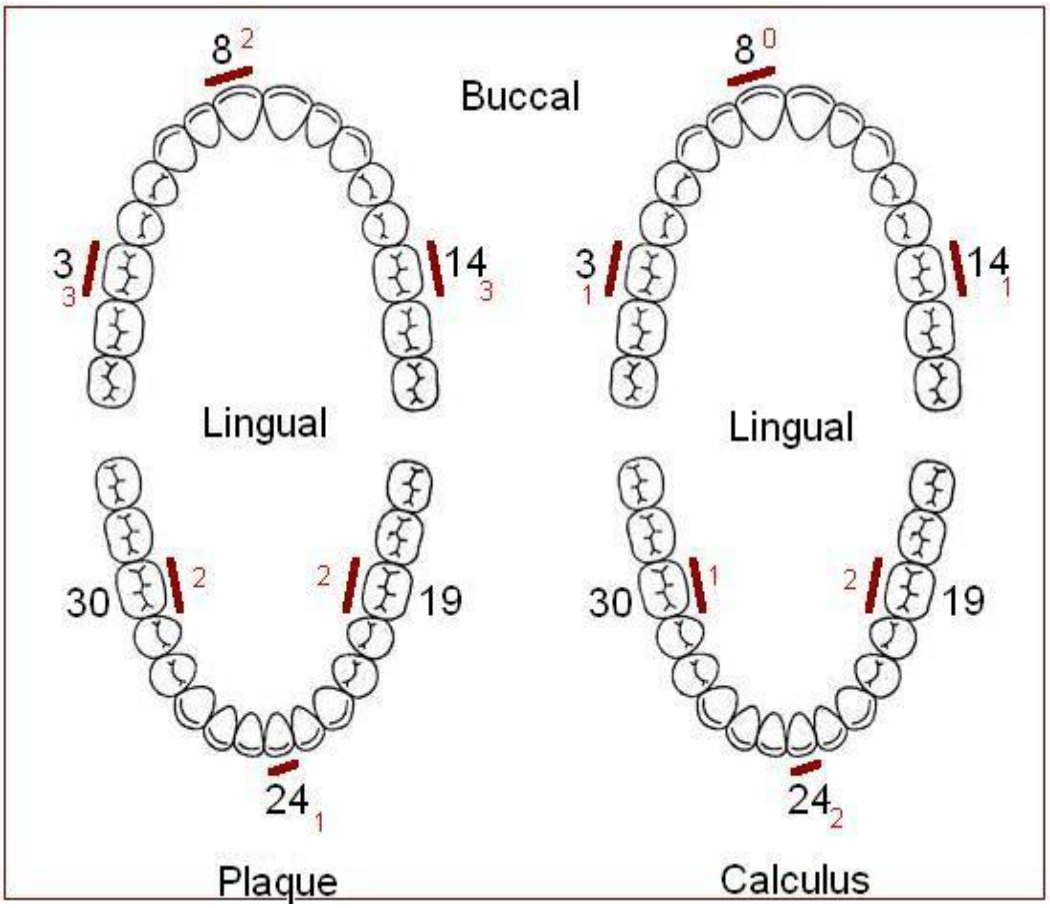
F-Filled

T-Teeth

Interpretation:-

DMFT gives an estimation illustrating how much the dentition so far has become affected by dental caries. A DMFT of 28 is maximum, meaning that all teeth are affected. A DMFT value of 0 indicates healthy teeth with no dental caries.

$$\text{Formula used} = \frac{\text{Number of decayed, missed,filled teeth due to dental caries}}{\text{Total number of teeth examined}} \times 100$$


8 2
Buccal
3 3
14 3
Lingual
30 2
2 19
24 1
Plaque
8 0
3 1
14 1
Lingual
30 1
2 19
24 2
Calculus

Indices used for dental caries assessment

Dental Caries:

A progressive irreversible microbial disease affecting the hard parts of the tooth. It is the most prevalent chronic disease affecting the human race. Once it occurs, its manifestations persist throughout life even the lesion is treated. It usually begins soon after the teeth erupted into the oral cavity. So, it is a post eruptive disease. It affects persons both genders, all races, all ages, all socio-economic groups.

1- Indices used for coronal caries. A- Permanent teeth.

B- Primary teeth.

2- Indices used for root caries.

***Permanent teeth index:**

Decayed-Missing-Filled Index (DMF) which was introduced by Klein, Palmer and Knutson in 1938 and modified by WHO:

1-DMF teeth index (DMFT) which measures the prevalence of dental caries/Teeth.

2- DMF surfaces index (DMFS) which measures the severity of dental caries.

The components are:

D component:

Used to describe (Decayed teeth) which include:

1. Carious tooth.
2. Filled tooth with recurrent decay.
3. Only the root are left.
4. Defect filling with caries.
5. Temporary filling.
6. Filled tooth surface with other surface decayed.

M component:

Used to describe (Missing teeth due to caries) other cases should be excluded these are:

1. Tooth that extracted for reasons other than caries should be excluded, which include: a- Orthodontic treatment.

b-Impaction.

c-Periodontal disease.

2. Unerupted teeth.

3. Congenitally missing.
4. Avalsion teeth due to trauma or accident.

F component:

Used to describe (Filled teeth due to caries). Teeth were considered filled without decay when one or more permanent restorations were present and there was no secondary (recurrent) caries or other area of the tooth with primary caries. A tooth with a crown placed because of previous decay was recorded in this category. Teeth stored for reason other than dental caries should be excluded, which include:

1. Trauma (fracture).
2. Hypoplasia (cosmatic purposes).
3. Bridge abutment (retention).
4. Seal a root canal due to trauma.
5. Fissure sealant.
6. Preventive filling.

Note :

1- A tooth is considered to be erupted when just the cusp tip of the occlusal surface or incisor edge is exposed . The excluded teeth in the DMF index are:

1- Supernumerary teeth.

2- The third molar according to **Klein, Palmer and Knutson** only.

2-Limitations - DMF index can be invalid in older adults or in children because index can overestimate caries record by cases other than dental caries.

Principle and rules in recoding:

1-DMFT:

1- A tooth may have several restorations but it counted as one tooth, F.

2- A tooth may have restoration on one surface and caries on the other, it should be counted as decayed D .

3- No tooth must be counted more than once, D M F or sound.

2-DMFS

Each tooth was recorded scored as 4 surfaces for anterior teeth and 5 surfaces for posterior teeth.

- Retained root was recorded as 4 D for anterior teeth, 5 D for posterior teeth.

- Missing tooth was recorded as 4 M for anterior teeth, 5 M for posterior teeth.
- Tooth with crown was recorded as 4 F for anterior teeth, 5 F for posterior teeth.

Calculation of DMFT \ DMFS:

1- For individual **2-** For population

DMF = D + M + F Mean DMF = Total DMF

Total No. of the subjects examined

Maximum score: Minimum score = Zero

1- DMFT = 32

2- DMFS = 12 * 4 + 20 * 5

= 48 + 100 = 148 or 128

***Primary teeth index:**

1- dmft / dmfs Maximum scores: dmft = 20 , dmfs = 88

2- deft / defs , which was introduced by Gruebbel in 1944

d- decayed tooth .

e- decayed tooth indicated for extraction .

f- filled tooth.

3- dft / dfs

In which the missing teeth are ignored, because in children it is difficult to make sure whether the missing tooth was exfoliated or extracted due to caries or due to serial extraction.

Mixed dentition:

Each child is given a separate index, one for permanent teeth and another for primary teeth.

Information from the dental caries indices can be derived to show the:

1. Number of persons affected by dental caries (%).
2. Number of surfaces and teeth with past and present dental caries (DMFT / dmft -- DMFS / dmfs).
3. Number of teeth that need treatment, missing due to caries, and have been treated (DT/dt , MT/mt , FT/f t).

Q- How could you differentiate between tooth missing due to caries and due to exfoliation?

1- By age of the patient if it is near to exfoliation time or not.

2- The shape of ridge is concave in carious missing tooth and straight in exfoliated one and permanent successor may be seen.
3- DMF/dmf index is higher in association with carious missing tooth
especially adjacent and the contra lateral teeth.
4- Bad oral hygiene mainly associated with carious teeth.

Q- How could you differentiate between tooth missing due to caries and due to orthodontic treatment?
1- By type of teeth, in ortho. treatment most teeth should be extracted are 4,5/c, d while in carious missing teeth any teeth may be involved.
2- Bilateral and /or opposing missing generally associated with ortho. treatment, while in carious missing teeth it is not necessary.
3- DMF/dmf index is higher in association with carious missing tooth especially adjacent and the contra lateral teeth with bad oral hygiene mainly associated with carious teeth.
4- Crowding or appliance may be seen in ortho. treatment.

***Root Caries Index (RCI), which was introduced by Katz in 1979:**

RCI is based on the requirement that gingival recession must occur before root surface lesions begin. Therefore, only teeth with gingival recession are examined.
1. All teeth are examined in both the lower and upper arch.
2. To obtain the RCI, each of the four surfaces the mesial, distal, buccal (labial), and lingual, of a root are examined for a single tooth.
3. When multiple types of root surfaces are exposed, the most severely affected root surface be recorded for that tooth.

The calculation of RCI:

RCI = (R-D) + (R-F) *100

(R-D) + (R-F) + (R-N)

(R-D) is no. of root surfaces with decay.

(R-F) is no. of root surfaces which have permanent filling.

(R-N) is the no. of sound root surfaces.

Scores	Critreia
0	No debris or stain present
1	Soft debris covering not more than one –third of the tooth surface or presence of extrinsic strain without debris regardless of surface area covered
2	Soft debris covering not more than one –third ,but not more than two-third, of the exposed tooth surface.
3	Soft debris covering more than two-third, of the exposed tooth surface.

$$\frac{\text{Total number tooth part with plaque}}{\text{According to the criteria} \times \text{Number of teeth presen}} \times 100$$

SECTION C:

ASSESSMENT OF KNOWLEDGE ABOUT DENTAL CARIES

1. Dental caries is
   a. Infection of teeth by micro organisms
   b. Gum bleeding
   c. Don't know

2. Dental caries is caused by
   a. Improper brushing and mouth washing
   b. Proper brushing and mouth washing
   c. Don't know

3. Most common age group affected by dental caries is
   a. Old age
   b. School age
   c. Don't know

4. Food stuffs which causes dental caries are
   a. Cakes, Candies, Sweet
   b. Rice
   c. Vegetables
   d. Don't know

5. Impaction of food particles on teeth can cause dental caries?
   Yes { } No { }

6. The signs of dental caries is
   a. Tooth pain
   b. Black coloration of the tooth
   c. Yellow coloration of tooth
   d. Don't know

7. Whether dental caries will spread from one tooth to other tooth?

   Yes { } No { }

8. The method to brush the teeth is
   a. Horizontal movements
   b. Vertical movements
   c. Rotatory movements

9. Correct time to change the tooth brush is
    a. 3 months once
    b. 6 months once
    c. Yearly once

10. Dental caries is prevented by
    a. Brushing alone
    b. Rinsing the mouth after every meals
    c. Both

11. The frequency to visit the dentist is
    a. 6 months once
    b. 1 year once

12. Sensitivity to hot and cold drinks and sweets is a symptom of dental caries
    Yes { } No { }

Scoring

The total mark are 12.Each question caries 1 mark.

9-12marks is adequate knowledge

5-8 marks is moderate knowledge

Less than 4 is inadequate knowledge

Section D:

ASSESSMENT OF DENTAL HYGIENE PRACTICE

1. Do you brush your teeth in the morning?

Yes { } No { }

2. Do you have the habit of drinking bed coffee?

Yes { } No { }

3. What device do you use for brushing your teeth?

a. Neem stick

b. Finger

c. Tooth brush

4. What do you use for brushing?

a. Ash

b. Tooth paste

c. Tooth powder

d. Brick powder

f. Any others

5. Do you eat chocolates and cream biscuits?

Yes { } No { }

6. Do you brush your teeth before going to bed?

Yes { } No { }

7. Do you have the habit of thumb sucking?

Yes { } No { }

Scoring

Each question caries 1 mark

கிராமப்பகுதியில் வசிக்கும் பள்ளி முன் பருவ மற்றும் பள்ளிப்பருவக் குழந்தைகள் மத்தியில் பரவியிருக்கும் பற்சொத்தையின் விகிதத்தை ஆராய்தல் மற்றும் விளையாட்டு முறைக் கல்வி முலம் பற்சுத்தத்தை மேம்படுத்துவதற்கான ஆய்வு

பகுதி-அ

அடிப்படை தகவல்

1. மாதிரி எண் :
2. வயது :
3. பாலினம் :
4. நீங்கள் பல் மருத்துவரை இதற்கு முன் சந்தித்துள்ளீர்களா?

   ஆம் இல்லை
5. உங்களுக்கு பல் வலி மற்றும் அதைப் பற்றிய அனுபவம் உள்ளதா?

   ஆம் இல்லை

   ஆம் எனில், மருத்துவ சிகிச்சை என்ன எடுத்தீர்கள் _____

பகுதி-ஆ

6-12 வயது வரையுள்ள குழந்தைகளுக்கு பல் பரிசோதனை மூலம் பற்சிதைவை கண்டறியும் ஆய்வு

1. பற்களின் மொத்த எண்ணிக்கை [ ]
2. பால்பற்களின் எணிக்கை [ ]
3. நிரந்தர பற்களின் எண்ணிக்கை [ ]
4. சிதைந்த பற்களின் எண்ணிக்கை [ ]
    a. பாதி
    b. மொத்தம்
5. இல்லாத பற்களின் எண்ணிக்கை (விழுந்த / எடுக்கப்பட்ட)
    a. பால் பல்
    b. நிரந்தர பல்
    c. பற்சிதைவினால்
    d. பற்சிதைவு அல்லாத காரணங்கள்
6. அடைக்கப்பட்ட பற்களின் எண்ணிக்கை [ ]
7. பற்களில் வலி உண்டா?

    ஆம் இல்லை
8. பற்களில் துர்நாற்றம் உண்டா?

    ஆம் இல்லை
9. பற்களில் நிறமாற்றம் உண்டா?

    ஆம் இல்லை
10. பற்களின் ஈறுகளில் இரத்தக்கசிவு உண்டா?

    ஆம் இல்லை

பகுதி-ஈ

பற்சிதைவை பற்றிய முன்னறிவை கண்டறியும் ஆய்வு

1. பற்சிதைவு என்பது
    a. நுண்ணிய கிருமியால்
    b. ஈறுகளில் இரத்தக்கசிவு
    c. தெரியவில்லை
2. பற்சொத்தையின் காரணம்
    a. முறையற்ற பல் துளக்குதல்
    b. முறையான பல் துளக்குதல்
    c. தெரியவில்லை
3. பொதுவாக பற்சொத்தையினால் பாதிக்கப்படும் வயது
    a. முதியவர்கள்
    b. பள்ளிப்பருவம்
    c. தெரியவில்லை
4. பற்சொத்தைக்கு காரணமான உணவுமுறைகள்
    a. கேக், மிட்டாய், இனிப்பு
    b. அரிசி
    c. காய்கறிகள்
    d. தெரியவில்லை
5. உணவுப்பொருட்கள் பற்களில் தங்குவதால் பற்சிதைவு ஏற்படுமா?

    ஆம் இல்லை

6. பற்சிதைவுகளின் அறிகுறிகள்
    a. பல்வலி
    b. பற்களில் கருப்பு நிறம்
    c. மஞ்சள் நிறப் பற்கள்
    d. தெரியவில்லை
7. பற்சொத்தை பற்களில் இருந்து மற்ற பற்களுக்கு பரவுமா?

    ஆம் இல்லை

8. பல் துளக்கும் முறைகள்
    a. முன்னும் பின்னுமாக
    b. மேலும் கீழுமாக
    c. சுற்றுமுறை
9. பல் தூரிகைமாற்றுவதற்கான சரியான கால நேரம்
    a. மூன்று மாதம்
    b. ஆறு மாதம்
    c. வருடத்திற்கு ஒரு முறை
10. பற்சொத்தையை தடுக்கும் முறைகள்
    a. பல் துளக்குவது
    b. உணவுக்குப்பின் வாய் கொப்பளிப்பது
    c. மேற்கூறிய இரண்டும்
11. மருத்துவரை அனுக வேண்டிய கால அவகாசம்
    a. 6 மாதம்
    b. ஒரு வருடம்
12. பற்சொத்தியின் அற்குறிகளாக சூடான, குளிர்ச்சியான மற்றும் இனிப்பு வகைகள் உண்ணும்போது பற்கூச்சம் ஏற்படுமா?

    ஆம் இல்லை

மதிப்பெண்கள்

மொத்த மதிப்பெண்கள் 12

ஒவ்வொரு கேள்விக்கும் ஒரு மதிப்பெண்

9-12	அதிக அறிவுத்திறன்
5-8	போதுமான அறிவுத்திறன்
4கும் குறைவாக	குறைவான அறிவுத்திறன்

பகுதி-இ

பற்சுத்தத்தை கண்டறியும் ஆய்வு

1. காலையில் பற்களை துளக்குவது உண்டா?

   ஆம் இல்லை

2. பல் துளக்குவதற்கு பயன்படுத்தும் சாதனம்?

   a. வேப்பங்குச்சி

   b. கைவிரல்

   c. பல் தூரிகை

3. பல் துளக்க பயன்படுத்துபவை?

   a. சம்பல்

   b. பற்பசை

   c. பல்பொடி

   d. செங்கல்பொடி

   e. மற்றவை _____

4. காலையில் பல்துளக்கும் முன் தேநீர் பருகும் பழக்கம் உண்டா?

   ஆம் இல்லை

5. நீங்கள் மிட்டாய் மற்றும் க்ரீம் பிஸ்கட் சாப்பிடுவது உண்டா?

   ஆம் இல்லை

6. படுக்கைக்கு செல்லும் முன் பல் துளக்குவதுண்டா?

   ஆம் இல்லை

7. விரல் சப்பும் பழக்கம் உண்டா?

   ஆம் இல்லை

மதிப்பெண்கள்

ஒவ்வொரு கேள்விக்கும் 1 மதிப்பெண் கொடுக்கப்படும்.

CHECK LIST

S.No	Criteria	Correctly Performed 2	Performed 1	Not Performed 0
1.	 Place the brush at an angle on the outer gum line with the bristles facing towards the gum. Wiggle gently back and forth, repeat for each tooth.			
2.	 Then brush the inside of each tooth using the same wiggling technique as in Step 1.			
3.	 Brush the chewing surfaces of the teeth using a backward and forward motion.			
4.	 Use the tip of the brush behind each front tooth both top and bottom			
5.	 Gently brush the tongue and gum line.			